

**30<sup>th</sup> General Meeting**  
of  
**American Society of Sugar Beet Technologists**  
February 10 - 13, 1999

PUBLIC PERCEPTION OF BIOTECHNOLOGY  
Food and Feed from Genetically Modified Organisms

Presentation:

**Public Perception of GMOs - a European Perspective**

by

Felix Klee, KWS Kleinwanzlebener Saatzucht AG, Germany

Feb. 11, 1999

Ladies and Gentlemen;

I am very pleased to have the opportunity to participate as a speaker on the Public Perception of Biotechnology, *Food and Feed from Genetically Modified Organisms (GMOs)*, at the 30<sup>th</sup> General Meeting of ASSBT. Considering my fellow panel members, it is obviously my part to present the European point of view regarding this colorful topic - I confess, there is no lack of sources to draw from.

However, despite amazing stories to be told from Europe, it is not my intention to bore you with a lengthy enumeration of events supporting a hint of self-pity. Rather, I will focus on conflicting issues raised by parties involved which must be dealt with open-mindedly.

**Public perception of GMOs - a European perspective**

To get us started, I will compare the progress of GMO crops in the EU and North America. I have selected two parameters, acreage of GMO crops and the number of products deregulated for commercial planting to demonstrate today's reality.

I am considering only the products approved for commercial planting. That is, 37 products are available on the U.S. market and 28 on the Canadian market. The first commercial planting in the U.S. took place in 1994. The picture in the EU is different. Only 8 approvals for commercial plantings have been granted, all since 1994 – and five others are limited to breeding and import only.

Of these 8 full authorizations, 3 concern carnations, one concerns tobacco, 3 extend to corn and one applies to rape seed. And only one of these agricultural crops, the now famous Novartis Bt corn event, has been planted in 1998 on a meager area of approximately 37.000 acres. Comparing the EU cultivation area for GMO-crops with its U.S. counterpart of about 50 Mil. acres clearly demonstrates the antagonistic attitude that exists toward GMOs in the EU.

What is happening? It is obvious that the EU attempt -ensuring uniform approval procedures for GMO crops across Europe - came to an abrupt halt. Knowing that equal and competitive conditions for the commercialization of this new technology are required and that potential environmental impacts do not respect national borders, the member states of the EU established common principles for dealing with GMOs. Council Directives 90/220 on the deliberate release of GMOs into the environment came into force in 1991. This Directive was supposed to spell out key principles for the handling of deliberate releases of GMOs (Part-B) and their subsequent placing on the market (Part-C).

All member states have implemented Directive 90/220. However, the execution of these rules differ that is why I will present the procedure for Germany only. Thus in Germany the **Part-B** (the procedure for a deliberate release) is conducted as follows: An application is made with a national Competent Authority (CA) which is a governmental body dealing with health and gene technology issues. The application is

reviewed and is displayed for one month at the office of the CA and close to the trial site. Local newspapers also carry the announcement of the application. Written objections can be submitted within the period of display and during the following month (The longer involvement of the public in this process is one of the specifics in the German situation). The authorization of a Part-B which is supposed to take 3 months, actually requires around 6 months. In some countries, e.g., Germany, as soon as enough experience is gained with a particular GMO a simplified procedure becomes available, allowing the CA to issue an authorization for the release of characterized GMOs at additional release sites within 15 days. The latter procedure is highly flexible, and allows for field tests for seed registration of varieties.

**Part-C**, referring to applications for placing on the market of GMO plants/seeds, involves all EU member states in the decision making. One member state takes the function of a „rapporteur“ which is a public body reviewing the initial information of a Part-C application before recommending it to the other CAs of the EU-member states. This time does not include the time required by the applicant to present further requested information. As the experience shows, existing time-limits are not honored by member states, some procedural steps come with no time-limit at all, and additional supporting material requested is rather ad-hoc. The approval under Directive 90/220 requires often more than 2 years - some products had to await regulatory approval for more than 30 months, and receiving the final legal authorization from the rapporteur country might be indefinite. The way Directive 90/220 is currently executed is not workable

### **This is the reality but the future might be even worse**

What sparked the turn of events is superficially an environmental backlash that muddled the rightful concerns of citizens. However, politics is playing a major role in the picture. We would not need to talk about EU-politics if national interests were not overshadowing EU interests, if some EU-member states were not to impose their selfish views upon the EU common interests, which were well defined, and if the EU-decision-making process were not so terribly slow. These factors combined with the current presence of populist governments, which fail to provide mid- and long-term perspectives regarding the use of food and feed containing GMOs, add up to a dangerous brew and uncertainty.

The EU-Commission is observing how biotechnology is perceived by the general public through a series of surveys. The so called EUROBAROMETER, conducted in 1991, 1993 and 1996, provides a glimpse into people's changing concerns and attitudes regarding new technologies.

Responding to the question what to expect in the next 20 years from the research areas depicted: Will it improve our way of life? Will it have no effect or will it make things worse? The 1996 survey concluded that most Europeans are optimistic about telecommunications, information technology, solar energy and new materials and a large majority expect these four technologies to improve their way of life over the next 20 years. People seem convinced as the number of „don't know“-answers runs relatively low (5-7%).

Fewer people expect benefits from biotechnology (mostly concerning applications in medicine), space exploration and genetic engineering, though with a share of people expressing no opinion, 26% for biotechnology and 22% for genetic engineering, the number of people undecided is rather high. Genetic engineering in 1996, as in 1991 and 1993, received the worst results, which draws a lower percentage of optimists than biotechnology. Considering some events having taken place since the 1996 survey, one must assume a further deterioration of public support for genetic engineering.

Based upon a May 1998 survey by the Center of Technology Assessment in Baden-Württemberg, Germany, the ramifications of the changes in attitude towards „green engineering“ and GMOs in food can also be anticipated. When asked to qualify the application of genetic engineering to resistance breeding of crops (insects, plant diseases, etc.) only a very slim majority, i.e., 35% responded in favor. When asked, however, to express their opinion on applying genetic engineering to increase the speed of crop growth, one third of the persons polled rejected this categorically. We note, depending on the objective of an application, genetic engineering is judged differently.

Turning now to GMOs in food, the same poll revealed that 3 out of 4 persons in Germany reject the application of genetic engineering in the food sector. Transferring genes between livestock to increase their respective performance was rejected the most.

A similar finding can be recently presented in Britain where the public feels increasingly negative about genetic engineering and biotechnology. Especially the overall feeling toward foods with GMO ingredients has grown dramatically more negative. Negative feelings have increased over the years. One third of the public in Britain is now extremely negative, that is, they find GMOs in food being unacceptable. Also, a growing number of people now say that GMOs have no place in plants at all.

Since the panic over the mad-cow disease in British beef just two and a half years ago, which by the way was not a result of genetic interference but which left consumers and regulators very sensitive about food issues, the continuing collapse of public support in Britain can be recorded and felt all over Europe. With each passing day, with each revelation such as the cloned sheep „Dolly“ in Scotland and now the cloned dairy calf „Uschi“ in Germany surfacing, the two sides on quo vadis genetic engineering polarize further and further.

On a more serious note, nobody wants to discount rightful concerns of consumers and citizens that come along with any introduction of a new technology. But what is disturbing, is the relentless agony of how opponents of genetic engineering take advantage of these legitimate issues. With the result, that the answers to these concerns by the scientific and regulatory community are neither understood nor heard. Thus, I would just like to present briefly some of the issues being discussed in public, regarding possible risks associated with the introduction of GMOs into the environment and the food chain and what I believe are the correct scientific-based and reasoned arguments concerning these issues.

- Allergy Risk

The proteins expressed by an inserted gene/construct are known and investigated to the fullest extent possible. None of the proteins additionally present in HT and Bt crops pose an inherent risk. These proteins do not even compare with proteins known for causing allergies. E.g., Kiwi and Papaya express many unknown proteins that might cause allergies.

- Field trials with GMO plants

Encompassing regulations such as the Directive 90/220 control the deliberate release of GMOs. Field releases are only authorized when the CA concludes that research and experiments have shown that no risk is imposed on human beings and/or the environment. So far, not one of the thousand field release sites demonstrated any risk.

- Outcrossing

A horizontal gene transfer from a crop to a wild relative, e.g. rape seed, can be expected. The receiving wild relative will, however, only benefit by this insertion as long as the subsequent herbicide, in the case of herbicide resistance, is applied. Otherwise, no selection advantage can be experienced, thus, the fear of a „superweed“ is a myth.

- Antibiotic resistance and subsequent horizontal gene transfer limits treatment options for human medicine

The concern is, that the effective use of antibiotics in human medicine is limited due to resistant pathogens in the gut. If an antibiotic is used very seldom and only externally for treatments, it makes no sense to ban the application of the gene conferring resistance to the antibiotic in question. Today's antibiotic resistance is not caused by subsequent genes but by the massive use of antibiotics in livestock feeding and in human medicine itself.

- Herbicide tolerant crops will require more herbicides

Since HT-Soybeans are grown on a large scale in the U.S., we know the opposite is true. Positive effects on the environment can be expected due to the reduction in herbicide use.

- Applying genetic engineering is unethical

What is considered to be ethical changes over time. Genetic engineering as a technique must not be considered as being the issue in this discussion. Only anticipated applications should be discussed.

- Farmers' dependence on seed companies.

Just look around you, and I am sure that you find enough incentives to ensure that farmers are at least not depending on one seed company only.

- Genetic Imperialism

Nonetheless, despite being argued back and forward, Europeans remain highly sensitive to GMOs and its subsequent science that is about to tell them what they should eat. Germany, for example, has been fixated on the food's purity for the last four centuries, e.g., the Reinheitsgebot rules how beer is made dates to 1516. And France has strong feelings about this as well being the producer of some of the finest wines and cheeses on earth. Additionally, Europe likes to maintain the image of small family-run farms that provide the European citizens not only with tasteful and healthy products, but also with a regional and cultural identity. There seems to be neither a desire nor space for GMO products in the minds of many Europeans.

Activists against GMO in feed and food are up in arms all over Europe capitalizing on the general public dismay and causing the authorities to act or not to act, depending on how you want to see it. Greenpeace, ECOROPA, Friends of the Earth, GRAIN, GenArche-Noah (Gene Noah's arge), Snowball, GenEthisches Netzwerk (Gene ethical network), Genetix, etc., and their so called splinter-groups find a fast arena for their often illegal activities which they justify by the right of civil unrest. Almost condoned, at least not condemned, by public authorities these groups go unharmed and surprisingly gain in public trust.

As the previous graph shows, consumer organizations lead as a source of information in which Europeans have the most confidence with regard to biotechnology. However, they are closely followed by environmental protection organizations. Schools and universities are significantly set back further. Public authorities do not even convince 10%.

Field trials with GMO-plants are notoriously destroyed all over Europe. A clear pattern as of how sites are selected can not be identified. Sometimes the choice of location for staging the show depends on the trait and/or the subsequent company providing the trait. Often these sites tend to be close to organizing „epicenters“ of the opponents or in areas where politics refrain from undercutting such actions. Of the 140 release sites conducted in Germany in 1998, 16 sites were either destroyed or squatted. Similar patterns can be identified in neighboring EU-states, especially in Britain, where activists even received the royal blessing when Prinz Charles attacked GMO-crops.

In Germany, Greenpeace protested against Novartis Bt corn by placing a huge banner warning against gene manipulated corn. But that was not all, later they also harvested the corn cobs and hauled it to Novartis Headquarters in Basel, Switzerland, in hope that this evil harvest would be incinerated as biohazardous waste. Novartis, however, confronted the protesters with corn hungry cows which took care of this matter naturally. They ate it and survived.

As well, the German unveiling of the first candy containing genetically modified corn, your beloved Butterfinger, caused quite a stir in front of department stores. Despite the Butterfinger being clearly labeled, Greenpeace handed out magnifying glasses to argue the sufficiency of the labeling which would not be noticed by the assumed target group, kids.

Even worse, British Campaigners have threatened supermarkets that they would remove all GMO-containing food products from the shelves if the supermarkets did not comply to their timely demands. Threatened supermarkets had little choice but to give in.

What farmers want and think seems to be not of concern to the public! Judging by a poll conducted in Germany in which farmers were asked if they would grow GMO crops, 35% answered of course and 33% said they would like to try it. When asked what type of genetically modified sugar beet they would grow, 65% replied herbicide tolerant ones, 61% opted for disease resistance and 44% preferred higher yielding sugar beets.

**And the EU-member states join the bandwagon - just a few quotes:**

“Taking account of the uncertainties arising from the release of transgenic plants into the environment which, like oilseed rape, carry risks of outcrossing with other species, we have decided ... to apply a

moratorium on all market approvals for two years in respect of each such genetically modified variety" Lionel Jospin, Prime Minister of France, 30 July 1998.

"...the Committee therefore instructed me to write to you to ask the Commission ... apply a moratorium on new authorizations of GMOs for commercial purposes while the scientific issues are being clarified in the course of revisions of Directive 90/220." Ken Collins, Chair of European Parliament's Environment Committee, 16 October 1998.

„If the Commission finds itself in a position where the Parliament and member states do not want to comply with legislation, then we would have to seriously reevaluate the situation." European Commission official quoted in European Voice 16 -21 October 1998.

In addition to the above, Austria, Luxembourg and Greece have temporary national bans in place on specific GMO releases under Directive 90/220. Austria and Luxembourg have banned the use or sale of the Novartis BT maize. The EU-Commission has been unable to overturn this ban. Greece has applied the same procedure to ban the import and marketing of genetically modified rapeseed. In France, Greenpeace and ECOROPA obtained an injunction against further cultivation of Novartis maize and a ruling that the seed had to be put under lock until the issue was resolved.

With the Proposed Revision of the Directive 90/220 on „the deliberate release" and commercialization of GMOs the discussion about the limited release of GMOs in Europe has intensified. Sweden, Austria, Finland and the new governments in France and England form a heavy block around the already known gene critics, Denmark, Luxembourg and Greece. One more heavy weight, like Germany, where the Greens hold the Environment and Health portfolios and which also holds the EU Council Presidency, and a tidal wave against GMOs in Europe unleashes causing a rift between the EU-Commission and the EU-member states

Despite a moratorium on GMOs on a Community basis having been so far rejected by the Environment Council Meeting on Dec. 21, 1998, the EU-members unrest is not ceasing. So already on January 21, 1999 the European Parliament's Environment Committee convened to debate what to propose to the EU-Parliament on Feb. 12, 1999 for consideration regarding the revision of the Directive 90/220. So far, this committee recommends to enforce liability insurance on GMOs, to restrict an authorization for commercialization to 12 years, to distinguish with respect to Part-B between GMO-plants having wild relatives, GMO plants with no wild relatives, and GMO plants that can get weedy, to outlaw antibiotic resistance and to require labeling. We shall see what the European Parliament will decide.

What they should decide is that the final Directive 90/220 fulfils (must fulfill??) three main objectives:

- Ensure the safety of genetically modified products for the environment and for human and animal health.
- Provide a clear, predictable and workable set of rules, so that the industry can be certain of stable regulatory and investment climate and the European public can be confident that their well being has been considered and is being protected.
- Allow European farmers access to the technology to produce high quality food in an environmentally sustainable manner.

The current Proposed Revision does not meet these three vital objectives. It does not propose fundamental changes to those existing procedures, which have made the implementation of the present Directive 90/220 unpredictable, inconsistent, repetitive, and therefore unnecessarily awkward for the industry.

The Directive should also be revised to introduce a science-based workable risk assessment process combined with appropriate legislation.

Europe is faced with a choice: A clear, transparent, timely and science-based regulatory framework that will ensure environmental and human safety while at the same time ensuring the competitiveness of the European biotech industry and enhancing GMO product acceptance. If the present situation continues in Europe, the outlook for GMO products is grim. However, if the final Directive 90/220 comprises the main objectives and if the EU-member states agree on a common procedure to execute this Directive then

consumer confidence and acceptance will build up and Europe will be a player in advancing food production using biotechnology.

Tomorrow - the die will be cast in Strassbourg.

Thank you very much.