

Science is trampled under foot

Prof. Dr. Klaus-Dieter Jany

Formally, the new "Opt-out Directive 2015/412 /EC" regulates the cultivation of genetically modified (GM) plants. Practically, however, with its implementation a complete backing out of genetic engineering is being prepared. And Science has almost no part in it any longer.

"Opting out ..." is increasingly becoming a political guideline, not just in Germany. The withdrawal from fossil energy sources of energy, and car with combustion engines, back out from nuclear power, the out-out of (green) genetic engineering, the withdrawal from trade agreements and from conventional agriculture are examples of immense populist topics. Often these topics are happily adopted by politicians - partly for electional reasons and partly driven by the public opinion.

Has now the "opting out from science" to be expected soon?

Implementation of the "Opt-out Directive 2015/412/EC" [1] and the amendment to Directive 2001/18/EC [2] now permits a simplified ban on legally approved gm plants and thus opening a way out of modern plant biotechnology and gene engineering. As the opt-out directive must be implemented into national legislation (Germany into the Genetic Engineering Act [3]), many EU Member States use this opportunity to prohibit in general the cultivation of gm plants in their territory by using non-scientific arguments. With the implementation of the opt-out directive, two possibilities are now being created to ban green genetic engineering from large parts of the Community. Originally, however, it was intended to facilitate the approval process of gm plants for cultivation by the Commission and then to give each EU Member State its own freedom of decision whether or not to commercially cultivate the gm plant.

Today, it is already very difficult to receive an approval of gm plants by the EU-Commission in accordance to Directive 2001/18 / EC or Regulation (EC) No 1829/2003. The procedure is often delayed for a long time period by the member states, mostly for purely political reasons. For example as demonstrated in the voting behaviour of Germany during the comitology-procedures. There is a political conflict between the ministries of agriculture (BMEL) and environment (BMU) and therefore Germany always abstained in the voting. Based on the legal regulation, the EU Commission can finally approve the commercial cultivation of a gm plant based on a positive assessment by the European Food Safety Agency (EFSA). If the EU Commission actually has permitted the cultivation once¹, the EU Member States now still could prohibit the cultivation of such a gm plant considered as safe with the possibilities outlined in the opt-out directive.

A ban on the commercial cultivation of gm plants was already possible due to the respective safe guard clause (art. 23, Directive 2001/18/EC). However, in that case Member State had to justify the ban with new scientific findings or had to present new scientific studies that such a cultivation was a threat to the human beings and / or the environment. Many EU Member States have banned the cultivation of Bt-maize MON 810 with non-scientific arguments². None of the applied arguments was substantial and was either rebutted by EFSA or shown to

have been taken into account in the original safety assessment. Unfortunately, this has change nothing: The EU Commission has not initiated any procedures in order to lift the ban on maize MON 810.

A scientifically sound justification for a ban on cultivation under Article 23 of the Directive 2001/18/EC was yet not possible. This caused an unpleasant feeling - even among politicians - and therefore the scientific justification had to be abolished. Other refusal reasons were in demand and were now created with the opt-out directive. For the first time, a scientific justification was not any longer necessary for a ban and was replaced by political reasons, of environmental-, agro-political-, land (urban) planning- or socio-economical kind:

- Following the coming into force of the opt-out directive or its respective implementation into national laws, a ban can simply be justified by stating that it is an agricultural and environmental objective to expand and promote organic farming and /or to diminish conventional farming. Genetically modified plants therefore do not fit into this concept. This is also confirmed by the German Environment Minister's statement: "Genetically modified plants do not belong to traditional agriculture in Germany"³.
- Socio-economic reasons: GM plants might be an economic competition for traditional agriculture and the resulting social impact could endanger public policy.
- Land planning would allow a prohibition based on reasons that the relevant region is to be designated as a nature reserve or a wind farm, a large solar field installation, etc. However, this can certainly not apply to a general ban on cultivation in a whole state.

The opt-out directive is intended to exclude large parts of EU agriculture from the use of gm plants and to prohibit farmers from selecting the most economical plants (varieties). A politically motivated "dirigisme" is obvious. However, what if this political "dirigisme" proves to be a incorrect decision for domestic agriculture? Protectionist aspects on agriculture certainly do not play a role. Instead, we have the rather grotesque situation: Import yes, cultivation no. Europe imports millions of tons of products derived from gm plants, but European farmers are not allowed to grow locally the same plants for political reasons.!

The opt-out guideline should primarily prevent the commercial cultivation of gm plants but it also has a negative effect on science despite contrary all affirmations.

Opt-out from science is prepared

In the opt-out directive, science is not mention at all. Why should it? Scientific arguments should not be used or applied for a general or regional cultivation ban. Only in recital 19 is it stated that the prohibitions "should not prevent biotechnological research being carried out, provided that all safety measures relating to human and animal health and the protection of the environment are respected". Recitals may serve as references but have no legally binding character. Germany is the only Member State, which has excluded scientific research from the opt-out directive, including research for placing gm plants on

the market. In Germany, field releases of gm crops assessed as safe by EFSA and approved by the EU Commission would be theoretically possible for biosafety investigations or for varietal testing. But regarding the current social-political climate which governmental or scientific institution would dare to apply for - or even carry out field - releases in regions or states where a partial or general ban on gm plants is in place? The disruption of public order, ultimately initiated by NGOs or stakeholders, would be pre-programmed. For other Member States, taking into account recital 19, it would lead to the situation that field releases must be prohibited for gm plants, which are considered already as safe as they do not anymore fulfill the characteristics of basic biotechnological research. A schizophrenic situation! Than it appears actually better and easier to prefer a general ban referencing to safety concerns of the population about gm plants. Obviously, basic research and its results, which could be put into practice in EU Member States, is undesirable. The findings (patents) are exported abroad, mainly to the USA and China. The European Union being economically well situated, on the other hand, rather buys or imports the products. Insulin originated from genetic engineering sends its regards!

Politicians and interested groups /stakeholders justify their negative attitude towards genetic engineering with their precaution obligation towards citizens / consumers and the environment. They always point out the high potential hazards and the insufficient bio-safety research. Still, numerous research projects have shown that gm plants are not exposed to any other hazards than their corresponding conventionally cultivated plants. In the last 25 years, the EU Commission has funded 130 projects on biosafety, which have been covered by more than 500 research groups from different scientific disciplines, funded with roughly 300 million euros. Genetic engineering-specific hazards were not detected in any of these projects. The same applies to research projects significantly funded by tax revenues in Germany. The 25-year BMBF research program on biological safety research, published by the German Federal Ministry of Education and Research, concludes: "Genetically modified plants do not pose a threat to humans or the environment." However, many politicians and interest groups refuse to take note or to accept these scientific results. Rather attempts are being made to keep these research works in the "drawer", and if they in certain cases reach the public, they are disqualified and the researchers objectivity is denied and instead being badmouthed as "servants of the industry". No further public discussion is wanted; it is easier to go the politically simpler way of a populist motivated cultivation ban. Science is trampled under food!

Back to Germany: politicians of the Social Democratic Party (SPD) and of Bündnis90/Die Grünen (the Green Party) want to turn by all means Germany into a gene engineering free country and therefore any scientific field releases must thus be prevented. However, both political parties are convinced that the implementation of the opt-out directive in gene law (GenTG) will actually hinder to achieve a general, comprehensive cultivation ban. It makes it more difficult since legal and compelling reasons are required and in addition, six federal ministries and the federal states also have to be involved in the ban. It is outrageous that both parties do not want the involvement of the Federal Ministry of Research, as this ministry is committed to science. Under these premises, no

general prohibition of cultivation can be achieved Germany-wide as a SPD politician suspected. Therefore, she will use all means to change it on a parliamentary way: Germany must be free from gm-plants!

However, how does it look like today? Since 2013, no gm plant was released for experimental purpose in Germany. Since 2009, the commercial cultivation of Bt maize MON 810 has been prohibited due to the safeguard clause. The hurdles for scientific release experiments - which are not prohibited - are so high that, no governmental or university research institute has been carry out further experiments. In the federal states of Lower Saxony and Baden-Württemberg, the release of gm crops is prohibited by political coalition agreements. Germany educates young people in an excellent and cost-intensive way to good scientists, but then it affords the luxury of letting them move abroad, mainly into the USA and China, in order to translate their scientific findings into patents and economic applications there. The question arises how long Germany actually can afford this. However, the political actions "opt outing or withdrawn from" secure electoral votes and, on the other hand, economic support for already technologically highly developed countries.

It is certainly only a matter of time before opting out is also requested for one of the most dangerous and controversial chemicals: dihydrogen monoxide. With this chemical, transnational companies earn worldwide millions of dollars and euros by storing, processing, providing and delivering it, and in some case even with state subsidies. It is a brilliant move: The chemical is an essential growth promoter and not just for plants, everyone needs it to live. Nevertheless, it is also not only statistically proven but also in reality true that this chemical is responsible for more deaths per year than all pesticides used in German agriculture. Against this background, statements of scientific and / or state authorities are completely untrustworthy that this chemical should not expose any other potential hazards than simple tap water. Therefore, a ban on this chemical must be considered, if not generally, but at least in agriculture. This could prevent humans, animals and plants from being further endangered, and soils contaminated with this highly dangerous chemical.

Therefore, I advocate for a general withdraw from everything and for healthy food free of anything to enable a new and better future! (Maybe, thanks to China?)

Footnotes:

(1) In 1998, the Bt maize Mon 810 has got an EU-wide approval and has since been the only genetically modified plant approved for commercial cultivation. In December 2005 the Bt maize MON 810 received a varietal approval for Germany. Since then politicians / ministers of the Green Party could successfully prevent the cultivation. In 2006-2008 this maize was then grown commercially in Germany. In 2009, on the instructions of the CSU Minister of Agriculture, the BVL had to apply the safeguard clause in order to ban a further cultivation.

The genetically modified potato "Amflora" was allowed to be cultivated between 2010 - 2013, but the approval had to be withdrawn according to a judgment of the ECJ. Maize Mon810 and five other genetically modified plants are waiting for approval for

cultivation on the EU Commission's holding queue. Based on the published opinions and feelings on unpredictable hazards and on political pressure, the Commission has hitherto made no decision. With the opt-out directive 2015/412 in the back, however, a fast implementation should be possible, as the further action is then in the hands of the member states.

- (2) Germany, France, Greece, Luxembourg, Austria, Poland, Bulgaria and Hungary have banned the cultivation of Bt maize MON 810 on their territories with the help of the safeguard clause. If the Commission is to go through the extension of the cultivation permit, the safeguard clauses will lose their effectiveness, but implementation in the countries listed there would still prohibit cultivation on the basis of the implementation decision (EU) 2016/321 [4].
- (3) Conventional hybrid maize certainly does not belong to the traditional crops in German agriculture. Should it not be banned immediately? Would it not be equally necessary to ban tractors and combine harvesters - "exclusion from diesel-powered vehicles"- because they do not belong to the Germany traditional agricultural practice! The same is true of the statement made by Minister of Agriculture Schmidt: "The cultivation of genetically modified maize is incompatible with the usual agricultural use in Germany."

Prof. Dr. Klaus-Dieter Jany

Former head of the molecular biological centre of the federal research centre for nutrition and food, Karlsruhe. Chair of the Wissenschaftlerkreis Gruene Gentechnik e.V. (WGG)