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Genetic Engineering and Organic Farming

by

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Summary

There is a world wide consensus among organic farmers not to use genetically engineered organism (GMO). Initially implemented through the guidelines of organic farming associations, this rule has now gained accession to consumer protection legislation in the USA, Japan and the European Union. EU-Regulation 2092/91/EEC on Organic Agriculture which is equal in rank to national statutory law in all member states of the European Union, prohibits the use of GMO by organic farmers. At the same time EU law permits under certain conditions the market introduction of GMO for use in agricultural production. In order to resolve any resulting conflicts between organic and GMO-based agriculture this law must provide a way of reconciling opposing interests and maintaining peace between the two competing forms of agriculture.

EU law permits protective measures for organic agriculture

At the European level neither the EU Regulation on Organic Agriculture nor the seeds directives prescribe mandatory measures for the protection of organic crops against pollination by GMO pollen. An evaluation of EU Directive 2001/18/EC on the Deliberate Release of GMO shows, however, that the permission to market a GMO may include an order to take measures to avoid property damage through pollination as one of the “specific conditions of use and handling” of the GMO. This results from a systematic and parallel interpretation of the EU Directive on the release of GMO and the EU Regulation on Organic Agriculture. Only inasmuch as the interpretation of the Directive on the release of GMO takes into account the legislative targets of the EU Regulation on Organic Agriculture will a balance of interests between organic agriculture and the cultivation of GMO be accomplished.

To this end member states may give their consent to the marketing of GMO contingent on preventive measures being taken for protection against the violation of property rights through GMO pollination of organic cultures. Property

rights are as a rule violated, when more than 1 % of the genetic information in organic products originate from GMO, since, if this is the case, Regulation 258/97/EC on Novel Foods requires that the labelling must indicate the genetic modification. Such mandatory labelling will cause losses to organic farmers, since as a rule they will be unable to demand the high price that organic products normally achieve relative to conventional products.

Proposals for isolation distances

Currently the most widely discussed option for affording protection against property damages is to provide isolation distances between cultures with GMO plants and organically managed cultures; another is to demarcate GMO-free regions.

Isolation distances have for a long time been used in seed production to maintain purity of breed. The goal is to keep impurity to a minimum. Statutory minimum isolation distances are based on past experience with seed production and they do not completely rule out hybridisation. Nevertheless, the imposition of safety distances does offer itself as one possible way of protecting organic agriculture.

An analysis of empirical data with a view to defining isolation distances revealed many gaps and hence an urgent need for further research. Despite this shortcoming, and for pragmatic purposes, the present survey was based on what data were available to derive first recommendations for isolation distances. However, these can obviously only serve as rough guidelines.

According to the available results, at a distance between 0 and 150 meters from the pollen source pollination by male sterile wheat can be expected to occur at a rate of 3 %.

At a distance of 0 to 10 meters from the pollen source, pollination in fertile wheat is expected to occur at a rate of 1% and between 10 and 50 meters at a

rate from 1 to 0.5 %. At distances greater than 100 meters the rate of pollination is expected to be under 0.1 %.

For the pollination of maize at a distance of less than 800 meters from the pollen source a pollination rate of more than 1 % is expected and at a distance from 800 to 1000 meters a pollination rate of more than 0.5 %. The pollination rate is expected to drop below 0.5 % at a distance of 1000 meters.

At distances up to 4,000 meters pollination rates of male sterile rapeseed are expected to exceed 5 %. No recommendations for isolation distances can be given for keeping pollination rates in male sterile rapeseed below 1 % or 0.5 % .

Such information could be printed on labels of seed product packaging.

Measures for protection against property damages through GMO pollination in organic agriculture, such as the declaration of isolation distances on commercial packaging of GMO seed, could be imposed by way of commercialisation permits. Implemented through commercialisation permits such measures could even today have an effect on civil-law relationships between organic farmers and GMO farmers, under certain conditions entitling organic farmers to claims for damages caused by genetic introgression.

Paths towards conciliation between neighbours

In Germany the private legal rights and spheres of interest of organic farmers and users of transgenic varieties are defined and delimited by civil law. The borderline is drawn by a system of legal claims governing neighbourly relationships. § 906 of the German Civil Code is the central norm of private environmental law. Under § 906 of the German Civil Code users of transgenic plants can be required to avoid or minimise genetic modifications in neighbouring cultures. When an organic farmer suffers market losses due to the pollination of organic cultures by GMO pollen, the owner of the neighbouring transgenic cultures can be ordered to pay damages. Under § 906 of the Civil

Code users of transgenic seed may desist from their efforts to avoid and minimise genetic modification in neighbouring cultures and pay compensation for such modifications only when the cost of the minimisation efforts are clearly higher than the damage to be expected and to be compensated in the neighbouring organic cultures. As yet there is no established jurisdiction on the degree of financial effort users of GMO plants can reasonably be expected to undertake to avoid and minimise GMO modifications. Since it requires the proof of a causal nexus between a source and an effect within the realm of the neighbourly relationship the principle of causal liability imposes a stringent regime of reporting, analysis and documentation on the organic farmer. It threatens users of transgenic seeds with compensation claims which will be enforced with considerable probability. At present it is difficult to assess the level of enforceable claims. This will codetermine the point when conventional farmers must desist from using GMO plants or relocate their transgenic cultures. The level of enforceable compensation claims will thus codetermine when organic farmers can demand neighbouring conventional farmers to take measures to prevent GMO pollen from infiltrating their cultures. This complex intercalating system of claims to desist or to compensate will have an inhibitory impact on the use of transgenic seeds, since in practice the individual responsibility of each user of GMO seeds, and the economic burden of having to avoid GMO pollination of neighbouring cultures or pay compensation, will not be calculable in advance. However, organic farmers are so burdened with having to secure cogent proofs of causality that many will see this as an intolerable manacle. Under these conditions there will be little hope of arriving at a state of peaceful coexistence.

A more promising solution might be an effective self-organisation of companies that produce transgenic plants and market GMO seeds. One possibility is to establish an “administrative and compensation system for promoting relations between users of transgenic cultures and their neighbours” as a means of implementing the “polluter pays principle”. The task of such a system would be,

firstly, to plan operations with respect to time and space in a manner conducive to peaceful coexistence (joint crop planning) and secondly, to develop a neutral mediation system for resolving conflicts between neighbouring farmers over crop planning. This mediation system could be cost-free for organic farmers. On the other hand the system could manage the disbursement of compensation to organic farmers, which could be made contingent on proof being furnished of a genetic modification of their cultures, yet without the necessity to prove a causal link of this modification to a specific neighbourhood culture.

The system could be financed by producers and suppliers of transgenic seeds. Consequently both sides, organic farmers as well as users of transgenic plants, would be served well. If the idea of a self-organised mediation system for temporal and spatial isolation in connection with a compensation scheme financed by GMO producers and users failed to gain acceptance, both elements could be introduced by statutory law.

This could be done in a variety of ways: introduction of a public register of production sites; introduction of good production practice in GMO cultivation; mandatory instruction on seed product packaging; and safeguarding of GMO-free production.

Public register of production sites

All member states of the European Union are required by the Release Directive 2001/18/EC to establish public registers documenting GMO cultivation sites and the identity of cultivated GMO varieties for the purpose of monitoring environmental effects. This register could at the same time serve as a production register for GMO. The Directive leaves it up to the member states to determine the details of register management. The Directive contains no impediment to requiring farmers to provide precise information on the location of their GMO cultures for the register. Organic farmers could likewise be required to provide information on their cultivation plans for the register. Information

concerning the precise design of the GMO and the analytical measures to detect it could be included along the lines of the draft of the EU Regulation concerning traceability and labelling. However, this draft only requires that the codes of GMO sequences be published. Since organic farmers must be in a position to reliably detect GMO sequences, the cultivation register would need to contain precise information on their identity. Such information would only need to be disclosed to farmers with a justified interest in it.

Instructions on seed product packaging

Producers of seed products can be required to instruct users of GMO on protective measures to prevent GMO pollination by means of labels on the packaging of seed products or instruction leaflets. For this, seed producers would need to inform users of GMO over which distances pollen from specific cultures are typically carried into neighbouring cultures and which measures for minimisation are available, such as isolation distances and crop timing. Users of transgenic seeds would thus know the minimum distance they must maintain to avoid neighbouring cultures exceeding the 1 % mandatory label indication level, which would constitute a damage. The obligation of the seed producer to instruct could be established by a legal regulation. Another conceivable solution would be for the seed industry to voluntarily commit itself to providing instructions on seed product packaging or accompanying leaflets.

Introduction of Good Production Practice in GMO cultivation

Protective measures to avoid GMO pollination of more than 1 % in organic cultures could be imposed on users of GMO seeds through the introduction of a code of “Good Production Practice in GMO cultivation” (GPP). This GPP code could provide a gauge for determining which measures for the avoidance of GMO pollination are expedient and reasonable. Such measures could include, for example, defensive cultivation planning and the maintenance of specific distances between transgenic and susceptible organic cultures. The GPP code

should set up rules for an obligation to minimise GMO pollination of other cultures. The measures of the GPP code should also resolve the issue which measures taken on the part of users of GMO to avoid GMO pollination are economically reasonable within the meaning of § 906 Civil Code.

For the implementation of the GPP code the administration must be empowered to impose specific single protective measures. Non-observance of such an order must be penalised as a regulatory offence. The possibility to punish such offences is required in particular in cases where the amount of potential damage to the organic farmer is lower than the costs of a defensive measure which the owner of a transgenic culture can be reasonably expected to undertake. In this case there is otherwise the danger that the user of the GMO dispenses with protective measures since it is more convenient for him to compensate the damage, which must still be proven.

“Good Production Practice in GMO cultivation” could be introduced by an amendment to the Gentechnikgesetz (German act on genetic engineering) or the Saatgutverkehrsgesetz (German act on the marketing of seed). Alternatively, it could be introduced through an amendment to a specific (organic) agriculture statute.

Damage fund for GMO pollination

For pollination by GMO from non-determinable sources a system for compensating organic farmers for market losses is necessary and indeed feasible. Compensation could be provided by a governmental compensation system or a fund model based on a statutory regulation or a voluntary self-commitment of producers and users of GMO. A compensation fund is to be preferred over a governmental compensation system, as the disbursement of compensation from public budgets would violate the polluter pays principle.

A private compensation fund would be exclusively used for compensation payments, in the same way as a governmental system would. Its advantage would be that producers and users of GMO would bear the burden of compensation, in accordance to the polluter-pays-principle.

Protection of organic seed production

The protection of organic seed production necessitates closed regional production areas. This requires the development of an appropriate legal basis. In addition, the authors have developed a draft for an organic farming statute which applies an already existing concept for the establishment of closed conventional seed production areas to organic farming. However there is considerable doubt whether such a law could contribute to a beneficial coexistence of organic and conventional farming outside of seed production.

In the overall analysis, taking account of the legal situation, the standards of organic farming, consumers' expectation of transparency and their freedom of choice in buying food, it becomes clear that the problem of how to arrive at a form of coexistence which does justice to consumers' right to freedom of choice will not easily be solved. The law in force provides clear starting points for the introduction of protective measures for organic agriculture. However, this requires substantial efforts from all those involved, the burden of which, from the viewpoint of the representatives of organic agriculture, should not be placed on organic farmers.