

Austrian Regulation leads EU way to Pure Seeds

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The Austrian Government has already enacted a seed purity law prohibiting contamination of conventional seeds with genetically engineered (GE) varieties above the detection limit. In doing this it has taken the lead among the 15 member states of the European Union in applying the principle of “zero-tolerance” on contamination of seeds with genetically engineered Organisms (GMO). What follows is a chronological account of how this seed law came into being and a review of how successful it is in practice.

Seed scandal 2001: Something must be done!

In May 2001 Greenpeace Austria published test results showing that maize seeds of the variety PR39D81 by Pioneer were contaminated by genetically modified organisms not authorised for release in Austria. Gradually it emerged that almost 180 tons of GE contaminated seeds, affecting an area under cultivation of around 6,000 hectares, had been released into the environment.¹ About 2,000 hectares of it were eventually destroyed, the Austrian State paying €2.67 million in compensation.^{i,ii}

Threshold discussion

All this time the seed- and biotech corporation in question, Pioneer, had disobeyed a ruling to destroy the fields concerned, maintaining that GE contamination is unavoidable and calling for high tolerance thresholds as a solution. The Austrian Ministry of Agriculture followed this line of argumentation when, in October, it submitted a draft regulation on genetically engineered seeds which proposed a tolerance threshold of 0.5% for contamination with GMO authorised for release. A tolerance threshold of 0.1% was proposed for organic seeds and for contamination with unauthorised GMO. This proposal was met by a storm of protest, as the tolerance thresholds has been seen as far too high.² An opinion poll commissioned by Greenpeace and carried out among farmers using conventional seeds showed that by far the majority rejected tolerance thresholds and asked for measures to avoid contamination instead.ⁱⁱⁱ Much importance was given to the view of the Conference of Presidents of the Chambers of Agriculture (PRÄKO), the official body representing the interests of Austrian farmers, who requested that contamination not only in organic but also in conventional seeds, should not exceed the detection limit.

¹ Apart from variety PR39D81, two more maize varieties by Pioneer, Ribera and Monalisa, were also affected. Contamination was proved above all with the GE maize variety MON810, but with BT11 and BT176 aswell. BT11 is approved for import into the EU, but must not be cultivated here. MON810 and BT 176 may not be imported into Austria due to national bans. The level of contamination was below 0.1% in some samples and between 0.1% and 0.5% in others. Batches with a contamination of more than 0.5% were also found but finally removed from the market before sowing.

² The Austrian Seed Authority BFL detected GE contamination in 16 out of 230 maize samples (7%) in 2001, only about half of which (a total of just 4%) were contaminated above 0,1%. This means that 96% of the tested batches did not exceed the 0.1% -level, even though the focus of the control test was mainly on seeds imported from non-EU states where the danger of contamination is seen as specially high. (Source see reference i)

Solution: Regulation on GE Seed Contamination

Eventually, the Regulation on GE Seed Contamination came into effect on 1 January, 2002 (see annex 1). This regulation states that every batch of seeds sold in Austria must be tested by the seed company (either producer or retailer) for contamination with GMO, applying specified sampling and testing methods laid down in an extra regulation (see annex 2). Only if no contamination was detected the company is allowed to put the seeds in the market. This regulation is applicable to both conventional and organic seeds without distinction, nor does it distinguish between contamination with authorised GMO and those not authorised for release.

Compliance with this regulation is monitored firstly within the framework of control measures for imported seed. Secondly, certificates of analyses are required and random samples are analysed within the framework of the seed authorisation proceedings for seeds produced in Austria. Furthermore the applicant has to confirm that he had take appropriate measures to avoid GE contamination.

The authorities take action if contamination exceeding 0.1% is detected in test samples. Sanctions include seizure of seed and fines of up to €14.500, and up to €21.800 in case of recurrence. The 0.1% threshold for taking action is due to statistical variation in the testing methods applied for initial testing: If the seed tests in the initial tests conducted by the seed company show no contamination, this means that 95% of further tests will show results of between 0 and 0.1%.³ The testing methods are based on concepts developed by the international organizations OECD, ISTA and EU.^{iv} The costs for initial testing and quality management including GE avoidance measures are met by the seed company, those for control testing are met by the authorities.

Experiences confirm Austrian approach

The final results of sample testing for crops grown in 2002 have now been published. This is the first year in which the regulation has been in force. This year, samples have been taken of a total of 148 batches, 112 of which were maize samples (56 of them tested were Austrian produce, and 56 were imported batches), 31 soya bean samples (28 Austrian and 3 imported) and 5 swede oilseed rape samples (all imported). Contamination could not be detected in any of the samples! Additionally, the company records of 31 seed producers or retailers were audited.^v Even the seed company Pioneer has now confirmed to its customers that the seeds it sells in Austria have been tested and no GE contamination has been detected.^{vi}

Austrian seed production has also been controlled by field monitoring in order to combat seed contamination at the root of the problem. Samples of 12 maize and 8 soya bean seed batches intended for seed production were tested, all with negative results. One maize plant and two soya plants that were in the field identified as GMO were removed from the field.^{4,5}

³ The threshold specified in the Regulation is therefore not 0.1, but -0- in the sense of not detectable applying the stipulated methods. The value 0.1 refers to the tolerance (LQL = Lower Quality Level) in follow-up and control tests and is consistent with the threshold value -0- in terms of methods and statistics.

⁴ The seed batches tested were maize from Canada, Chile, France and the US, soya from Austria, Canada and France. (Source see reference vi)

⁵ In 2000, all the basic seed batches for maize seed production used in Austria were thoroughly examined. In parts of four of the 337 samples examined, contamination with GMO authorised in the EU was detected in the scope of about 0.1%. As the results were available only after the sowing period, it was tried to purify the seed by identifying and removing GE-plants not belonging to the variety („outcrosses”) right in the field. This strategy seems to have been at least partly successful, as the harvested seed is contaminated to a lesser extent than the

In light of these results the Austrian Minister of Agriculture, Wilhelm Molterer, assesses the Regulation very positively. He has pointed out in particular that the production of maize seeds has climbed from 2,100 hectares in 1999 to 4,200 hectares in 2002 and that all this produce is now certified as GE-free by the Austrian Seed Certification Authority.

The Austrian Regulation on GE seed contamination also has its weak points. If, for example, test controls done by the Seed Authority detect unapproved GMO, the authority does not take any action, so long as the 0.1-percent-limit is not exceeded. This is true even if the seed has not yet been sown in which case avoiding the release of these unassessed GMO into the environment would be very easy. Compared to the proposals by the EU Commission in this matter, however, it is an exemplary piece of legislation. According to the EU proposals, contamination in seeds would not need to be labelled up to 0.3, 0.5 or 0.7% (depending on the plant variety). Furthermore it does not include any upper limit for contamination exceeding which the marketing of the seed would be illegal. The “purity requirement” laid down in the Austrian regulation on GE seed contamination is therefore an example to be followed by the EU. Experience in the first year has confirmed that imposing the principle of zero tolerance does work in Europe.

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Annex:

The seed purity requirements are laid down in two regulations: The Regulation on GE Seed Contamination as the primary Regulation and the “Methods for Seeds and Varieties” supplementing the details regarding sampling and testing methods. Below translations of both of the regulations can be found.

The Authority in charge of the enforcement of these two regulations is called „Institut für Landwirtschaftliche Untersuchungen und Forschung Wien“ (Agricultural Inspection Service and Research Centre Vienna), which is part of the „Agentur für Ernährungssicherheit AGES“ (Food Safety Agency).⁶

1. Regulation on GE-Seed Contamination

Below you can find a not authorized translation of the „Verordnung des Bundesministers für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft über die Verunreinigung von Saatgut mit gentechnisch veränderten Organismen und die Kennzeichnung von GVO-Sorten

basic seed. In this context, it has also been proved that these so-called outcrosses produce considerably more pollen when compared to male components of the non-GE variety, i.e. they have a higher potential for cross-pollination. (Source see reference i)

⁶ The contact informations of the official in charge: DI Leopold Girsch, Landwirtschaftliche Untersuchungen und Forschung Wien (Agricultural Inspection Service and Research Centre Vienna, former „BFL - Bundesanstalt und Forschungszentrum für Landwirtschaft“), Spargelfeldstrasse 191, A-1226 Wien, Postfach 400, AUSTRIA, Tel. 0043/1/73216-4500, Email leopold.girsch@lwwie.ages.at, Homepage www.lwwie.ages.at/

und Saatgut von GVO-Sorten“ (Regulation of the Federal Minister of Agriculture and Forestry, Environment and Water Management on the contamination of seed with genetically engineered Organisms and labelling of GMO-Varieties and seeds of GMO-Varieties”, briefly called „Saatgut-Gentechnik-Verordnung“ (Regulation on Seeds and GE). The original Legislation is available in German on the Internet at: <http://bgbl.wzo.at/pdf/2001b478.pdf>

Federal Law Gazette for the Republic of Austria
478th regulation: Regulation on seeds and GE
Published and sent on December 21, 2001

478th regulation of the Federal Minister for Agriculture, Forestry, Environment and Water Management on the contamination of seeds with genetically modified organisms and on the labelling of GE varieties and seeds of GE varieties (Regulation on seeds and GE)

Based on the Articles 5, 6, 14, 15, 18, 19, 20, 52, 65, and 70 of the Seed Law 1997, BGBl. N° I 72/1997, last changed by the Agricultural Amending Law 2001, BGBl. I N° 109/2001 it is declared:

Definitions

Article 1

For the purposes of this Act

- the term “GMO” means genetically modified organisms as defined in the Gene Technology Act, BGBl. N° 510/1994, last changed by the federal law BGBl. I N° 73/1998,
- the term “approved GMO” means GMO whose release for purposes of cultivation is authorized according to the Council Directive 90/220/EEC of 23 April 1990 on the deliberate release of genetically modified organisms into the environment (OJ N° L 117 of 8 May 1990, p.15) or the Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release of genetically modified organisms into the environment and repealing Council Directive 90/220/EEC (OJ N° L 106 of 17 April 2001, p.1),
- the term “non-approved GMO” means GMO that do not meet the requirements under the previous points.

Scope

Article 2

(1) This regulation applies to the following species:

- Swede rape (*Brassica napus* L. var. *napobrassica*),
- Maize (*Zea mays*),
- Rape (*Brassica napus*)
- Turnip (*Brassica rapa*),
- Soya bean (*Glycine max*),
- Turnip (*Brassica rapa* L. var. *rapa*), and
- Tomato (*Lycopersicon lycopersicum*) for processing purposes, and
- Chicory (*Cichorium intybus* L.).

(2) Seeds containing GMO may only be put on the market if they meet the requirements of the Seed Law 1997 and of this regulation in combination with the Methods for Seeds and Varieties under Article 5 of the Seed Law 1997.

Tolerance thresholds for the adventitious presence of GE seeds in conventional seeds

Article 3

- In proceedings in accordance with the Seed Law 1997, adventitious presence of GE seeds in conventional seeds may not be detectable in first tests and may not exceed a 0,1% threshold in follow-up tests conducted in the course of control measures of seeds put on the market.

- Requirements for testing methods and statistical requirements for test results when testing seeds for genetic modification through contamination with approved or non-approved GMO are stipulated in Article 5 of the Seed Law 1997 (Methods for Seeds and Varieties).

Applications according to Seed Law 1997

Article 4

- In all proceedings according to the Seed Law 1997, the applicant shall confirm in writing to the Austrian Seed Certification Authority that he or she will meet the requirements of this regulation. Such a confirmation notwithstanding, the Seed Certification Authority may implement control measures. These may apply in particular to good production practices and to reports on tests for contamination with GMO.

- The term “good production practices” means all measures taken by the applicant in order to avoid contamination of seeds with GMO. The responsibility to apply good practices in order to avoid contamination with GMO lies with the seed producer and the seed processor at all stages in seed production and seed processing, in particular during the preparation stage and cultivation itself, during the implementation of agricultural measures on fields used for the production of seeds, during the harvest and all transports, during the storing and processing of seeds as well as during the labelling and sealing of the ready-for-use seeds and during final storage.

- The person authorized to market standard vegetable seeds for the first time shall be in possession of documents proving that the requirements of this regulation are met. These documents shall be kept for at least seven years and shall be made available free of charge to the Seed Certification Authority for controls according to the Seed Law 1997.

- In proceedings according to the Seed Law 1997 for which the application was made after 1 July 2001 and up to the date of the coming into effect of this regulation, the Seed Certification Authority shall be provided with a confirmation as under paragraph (1) within a month of the coming into effect of this regulation. If no such confirmation is provided, proceedings not yet concluded cannot continue.

- In all applications in proceedings according to the Seed Law 1997, a GE variety or seeds of a GE variety shall be clearly labelled “GE variety” or “GE seeds”, together with the name of the GMO.

Labelling

Article 5

- Every category of seeds of an approved GE variety shall be clearly labelled “genetically modified variety”, together with the name of the GMO, on every label and every accompanying document, official or other, attached to or enclosed with a batch of seeds.

- An approved GE variety shall be clearly labelled “genetically modified variety”, together with the name of the GMO, in the part of the List of Varieties accessible to the public.

- Whoever offers an approved GE variety or seeds of a GE variety for sale shall clearly label them “genetically modified variety”, together with the name of the GMO, in sales catalogues or other information or promotion material.

- The labelling according to paragraphs (1) to (3) shall include information on special properties of the product brought about by genetic modification (e.g. herbicide tolerance).

- Paragraphs (1) to (4) do not apply to seeds meeting the requirements under Article 3.

Coming into effect

Article 6

With the coming into effect of this regulation, the Regulation on the Labelling of Genetically Modified Seed, BGBl. II N° 74/1999, is invalidated.

Minister Molterer

2. Regulation on Methods for Seeds and Varieties

Below you can find a not authorized translation of the additional provisions the above mentioned regulation is referring to (see Art. 3). These are laid down in a publication titled "Methoden für Saatgut und Sorten" (Methods for Seeds and Varieties), which was adopted by the ministry of agriculture and published by the austrian seed authority.^{vii} The translation covers only the part of the regulation which was amended in order to supplement the regulation on seed contamination.

Modifications to Methods for Seeds and Varieties

(according to art. 5 of the Seed Law 1997, BGBl.I nr.72/1997, last modified by BGBl. I nr. 109/2001)

Requirements for seed properties and for methods to determine seed properties (Plant Varieties and Seeds Gazette [Sorten- und Saatgutblatt] 2000, vol. 8, Special Edition nr. 10, 4.5.2000)

Based on art. 5 of the Seed Law 1997, BGBl.I nr.72/1997, last modified by BGBl.I. nr. 109/2001 it is declared:

Page 107, part 3, item 3.6. is inserted:

3.6. Requirements for methods applied for testing seeds for contamination with approved or non-approved GMOs

3.6.1. General requirements for methods applied for testing seeds for contamination with approved or non-approved GMOs:

The methods applied for testing seeds for contamination with GMOs shall be in keeping with the latest scientific and technological developments and – if available – with the international standardized methods for seed testing.

3.6.1.1. Requirements for sampling:

The requirements for sampling have to be in keeping with the international seed sampling methods – in Austria the norms to be observed are the Norms and procedures for taking officially recognized representative samples including checking of labelling, packing and sealing (Normen und Verfahren zur Durchführung der amtlichen repräsentativen Probenahmen einschließlich Kontrolle der Kennzeichnung, Verpackung und Verschließung), laid down in the Plant Varieties and Seed Gazette 1998, vol. 6, Special Edition nr. 1, 28.4.1998 as amended.

3.6.1.2. Identification of samples in the laboratory:

The identity of the sampling organisation responsible as well as the kind and intactness of the seal of each sample shall be examined by the laboratory and shall be included in the report on findings. Information on the identity of a sample shall always include at least the control or reference number, the botanical kind and the plant variety of the seed lot from which the sample was drawn.

3.6.1.3. Requirements for the preparation of samples:

The testing of seeds for contamination with GMOs shall be carried out on a working sample, composed of „pure seed“ and „seed of other species“, in accordance with the Methods for the determination of technical purity (Methoden zur Bestimmung der technischen Reinheit) (Plant Variety and Seed Gazette 2000, vol. 8, Special Edition nr. 10, 4.5.2000, part 2, item 3: Requirements for the properties of seeds with regard to technical purity, and part 3, item 1: Methods for the determination of technical purity). Determining „Innoxious contamination“ does not form part of the testing of seeds for contamination with approved or non-approved GMOs.

3.6.1.4. Other requirements for the preparation of samples:

Seed treatment (e.g. coating, incrusting, pelleting) and external contamination of the seeds, which could be a result of the testing of seeds for contamination with approved or non-approved GMOs, must be ruled out.

3.6.2. Special requirements for the testing method, the test plan, and the findings:

A test plan shall be drawn up according to the criteria of the testing method applied, in such a manner that the requirements of the Regulation on GE Seed Contamination as well as the requirements of the present Methods for Seeds and Varieties are fulfilled.

3.6.2.1. The smallest unit for which contamination with approved or non-approved GMOs may be stated is a single seed.

3.6.2.2. The working sample for the testing of seeds for contamination with approved or non-approved GMOs must contain a minimum of 3000 seeds.

3.6.2.3. Depending on the detection limit and the technical parameters used in the method applied, the test plan shall provide for sample portions, so that 1 genetically modified seed in 3000 seeds can be detected at any rate. This applies to initial testing as well as to follow-up testing and testing carried out in the course of control measures for imported seed.

3.6.2.4. Testing method and test plan shall be designed in such a way as to ensure with a 95% statistical reliability that no contamination with approved or non-approved GMOs is present in the seeds and that the real contamination of a seed lot with GMOs does not exceed the 0.1% threshold.

3.6.3. Minimum requirements that the report on findings for testing seeds for contamination with approved or non-approved GMOs has to fulfill:

3.6.3.1. General information in the report on findings:

- a) information about the laboratory carrying out the tests, in particular name and address, information on accreditation, etc;
- b) name and signature of the authorized signatory or signatories;
- c) name and address of the initiator of the testing;
- d) information regarding the existence of any subcontracts.

3.6.3.2. Information about the submitted sample:

- a) description of the identity of the sample by stating at least the control and reference numbers, the botanical kind and – if possible – the plant variety of the lot from which the sample was drawn;
- b) description of seed treatment (e.g. coating, incrusting, pelleting);
- c) description of the kind of seal sealing the sample;
- d) name of the sampling organisation responsible;
- e) date when the sample was drawn;
- f) date when the laboratory received the sample.

3.6.3.3. Information on testing:

- a) description of the testing method;
- b) description of the test plan, in particular information on the number of seeds examined;
- c) description of the parameters of the testing method applied and the test plan drawn up, in the context of a) and b);
- d) date when the testing was completed.

3.6.3.4. Stating the test results:

The test results shall be stated in accordance with the requirements of the Regulation on GE Seed Contamination and the requirements of the present Methods.

References:

ⁱ Parliamentary answer by Minister Molterer to question (3683/J) by M.P. Sima on seed and animal feed controls and the regulation on seed thresholds (3653/AB, XXI. GP, 21 May 2002), on the Internet at: www.parlament.gv.at/pd/pm/XXI/AB/his/036/AB03653_.html (in German)

ⁱⁱ Parliamentary answer by Minister Haupt to question (3343/J) by M.P. Pirklhuber on GE contamination of seeds II (3321/AB, XXI. GP, 26 March 2002), on the Internet at: www.parlament.gv.at/pd/pm/XXI/AB/his/033/AB03321_.html (in German)

ⁱⁱⁱ The opinion poll is available on the Internet at:

www.greenpeace.at/umweltwissen/gentech/pdf_files/greenpeace-meinungsumfrage.pdf (in German, for English version contact Greenpeace Austria)

^{iv} A valuable comprehensive survey on the topic is given, apart from literature cited under reference iv, in the special issue „Rechtliche Aspekte und methodische Ansätze im Zusammenhang mit dem Nachweis von GMO-Verunreinigungen in Saatgut“ (Legal aspects and the methods for the detection of GMO contamination in seeds) by the “Arbeitsgemeinschaft Landwirtschaftlicher Versuchsanstalten Österreichs” (Work group of the Agricultural Research Institutes Austria), available on the Internet at: www.alva.at/sonderheft/inhalt.htm (in German)

^v Parliamentary answer by Minister Molterer to question (4143/J) by M.P. Pirklhuber on GMO contamination of seeds III (4169/AB XXI. GP, 9 September 2002), available on the Internet at: www.parlament.gv.at/pd/pm/XXI/AB/his/041/AB04169_.html (in German)

^{vi} Letter from Pioneer Austria to the provincial government of the federal county Vorarlberg, 1. March, 2002.

^{vii} The methods are stipulated in “Methoden für Saatgut und Sorten” (Methods for Seeds and Varieties) published in “Sorten- und Saatgutblatt” (Varieties and Seeds Journal). Further information on the Internet at: www.lwvie.ages.at/institut/saatgut/regelungen/methoden/methoden.htm