

**FIRST DRAFT
OF THE BEST PRACTICE DOCUMENT FOR MAIZE CROP PRODUCTION
SUMMARY OF THE COMMENTS OF STAKEHOLDERS**

The First Draft of the Best Practice Document (BPD) for maize crop production was sent to stakeholders on 8th October 2009 (consultation organised by DG AGRI via Advisory Groups managed by the Commission).

The following organisations have sent their comments:

IFOAM EU

Deutscher Bauernverband e.V.

EuropaBio

COAG Spain

European Coordination via Campesina

COCEREAL

ASAJA SEVILLA.

Three more organisations, Arvalis, Euromaisers and the European Seed Association have expressed their interest in consultations, but no comments on the document were obtained by DG AGRI.

The stakeholders have made both general and detailed comments on the document. The general comments were as follows:

- the coexistence measures should be developed to avoid any GM admixture in non-GM harvests
- maize seed production should be included in the document, as it is a key step to ensure coexistence; also, the use of farm saved seed or non-hybrid maize seeds should be addressed (however later in the document obtained by DG AGRI the section of BPD regarding special case of open pollinated varieties is acknowledged)
- the legal uncertainty was stressed concerning the labelling as containing GMO of all the seed lots in which any presence of GM events authorised for cultivation in EU was detected
- all the assumptions are based on a worst case scenario (e.g. the receptor fields located downwind from the donor); such situations will be rare in practice therefore no further "precautionary measures" should be introduced by policy makers

- further steps of the production chain should be taken into account (like milling, mixing etc.) and the appropriate safety margins for the stakeholders involved should be foreseen. The 0.9% labelling threshold should be applicable to the end product only and not at the commodity stage
- the special case of sweet maize illustrates the incoherence of the approach taken in the document
- the costs of coexistence measures are not addressed sufficiently; the cost of keeping non-GM production free from any admixture should be taken into account; also the costs of taking samples and analysis should be addressed, as well as the cost of switching to alternative crop production, and the costs of transport, machinery cleaning and destruction of volunteers
- the experiences gained in other countries are not taken sufficiently into account (e.g. the GrainSafe programme developed at Purdue University)
- there is a need for certification of GM production and a need for guidance for liability rules; 'the polluter pays' principle should be applied
- the availability of simple and reliable tests allowing detection of GM admixture at level of 0.1%, and even 0.01% is crucial
- accumulative sources of admixture (like wind, bees, other insects and harvest transport) are not taken into account; also the use of farm saved seeds should be encouraged
- the beekeeping disappears from the areas where GM maize is cultivated and the use of GM HT crops will render herbicides ineffective due to the appearance of herbicide resistant weeds
- the acknowledgement that coexistence may be difficult to achieve in areas with small fields was welcomed.

It was also stated that coexistence based on good agricultural practices is a reality. 12 years of commercial planting of BT maize in Spain was stressed. The coexistence measures must be proportionate and based on real and contrasted data, not on opinions and fears. The farmer's right to choose the production system has to be respected.

The detailed comments were mostly associated with the abovementioned general comments. The majority of requests for changes concerned editorial changes, amendments of information given in the document, and the possible use of buffer/discard zones as a coexistence measure and machinery cleaning.

The detailed comments and requests for changes are summarised in the table below.

From	Page	Line	Contribution	Justification/comment
IFOAM EU	5	3 f.	Coexistence refers to the ability of farmers and other operators in the food and feed chain to choose between the cultivation and use of genetically modified (GM) crops or non-GM crops, considering the used infrastructures; (...)	In many regions, maize production works with high sectoral integration, common infrastructures are used.
IFOAM EU	5	44 f.	Condition to ensure the farmer's and customer's choice through the food chain.	also farmers must have the choice to grow the crops they choose and to deliver to specific quality markets such as organic or GMO-free (recital 62 of Directive 2001/18 as well as the Council conclusions on GMO of the Environment Council from 4 December 20
IFOAM EU	6	10 f.		Reference or web link to national legislation missing.
Deutscher Bauernverband e.V. Berlin	9		No current data for areas for grain and silage maize production are given	
IFOAM EU	11	3	Data: for 2006 & 2007 James 2007, ISAAA , Polish newsletter Kukurydza Nr 52 2008, adapted	These data are to our knowledge based on a report made for "International Service for the Acquisition of Agri-biotech Applications", we would not consider those data as being "neutral" as ISAAA is sponsored by interested industries. Ideally, official data from member states should be collected; at least, if this table stays in the document, the source of information should be made more transparent.
Deutscher Bauernverband e.V. Berlin	12		Data on sweetmaize production in Germany: 2008 - 1853 ha and 2009 - 1634 ha; data for 2007 are not given	Destatis - Wachstum und Ernte - Gemüse - Fachserie 3 Reihe 3.2.1
Deutscher Bauernverband e.V. Berlin	13	table 2	Data for Germany must be corrected - KWS have introduced two varieties - Mikado and Doge Biogas Mais with maturity classes between ~500 and ~600	
Deutscher Bauernverband e.V. Berlin	14	table 3	Data for Germany must be corrected - in Northern Germany maize can be sown from mid April	
IFOAM EU	15		varietal purity and purity as freedom from GMOs	see general comments

From	Page	Line	Contribution	Justification/comment
IFOAM EU	16	2f	3. Review of the available information on management of the avoidance of GM presence in maize crop production	The aim of all coexistence measures must be to avoid any contamination of GMO free crops. (reg. 1829/2003, Article 12 and 24, Paragraph 3: "In order to establish that the presence of this material is adventitious or technically unavoidable, operators must be in a position to supply evidence to satisfy the competent authorities that they have taken appropriate steps to avoid the presence of such materials.")
IFOAM EU	16	13f (boxes)	addition: Mixing in machinery due to shared machinery for spraying - cleanliness of machinery	In some regions spraying organized with shared machinery
IFOAM EU	16	35	purity	see general comments
IFOAM EU	17	1	Currently, in the absence of thresholds setting a maximum for the adventitious and technically unavoidable presence of GMO in non GM seed lots, any detectable traces of GM events authorised for cultivation must lead to the labelling of the seed lot as "containing GM".	Labelling from the detection level is not only a current legal requirement, but also crucial to ensure the maintenance of GMO-free agriculture. Furthermore, without labelling of GMO impurities in seed at the detection threshold, it will be impossible to ensure the proper implementation of traceability requirements, in practice, of Directive 2001/18/EC on the deliberate release into the environment of genetically modified organisms.
Europa Bio	17	1...3	Delete the following passage "Currently, in the absence of thresholds setting a maximum GM adventitious presence in non-GM seed lots, any detectable traces of GM events authorised for cultivation should in theory trigger the labelling of the seed lot as "containing GM"".	This portion of the Best Practice document cannot be endorsed by EuropaBio because the lack of legal certainty on adventitious presence in non-GM seed creates an unmanageable situation, which cannot be resolved by applying the existing GM labeling requirements
IFOAM EU	17	32f	The majority of Member States operates a zero tolerance policy (defined by the practical "level of quantification", around 0.1%). Others, like the Czech Republic, Greece, 34 Sweden and The Netherlands, operate a "tolerance level" – in the case of maize 0.	see comment p17, line 1
Deutscher Bauernverband e.V. Berlin	17	36...39	More detailed description of the units of measurement used in Germany should be given	
IFOAM EU	17	39	During these six years, the number of incidents of adventitious presence of authorised GMOs in maize seed lots reported by 41 Member States was estimated at 280 ,	The time frame must be clear; the number of incidents is 280 and not 390 according to http://ec.europa.eu/environment/biotechnology/pdf/seeds_study_2007.pdf

From	Page	Line	Contribution	Justification/comment
Deutscher Bauernverband e.V. Berlin	17/18		The results of inspection of adventitious GM presence I non-GM seed lots in member States are based on data from 2006 - more recent data should be used.	
IFOAM EU	18	18f	farmers do it routinely before starting to sow different varieties. Therefore the sowing step was not considered a significant source of possible GM admixture. Sowing is one possible source of contamination in the cultivation. Routine cleaning is not sufficient to comply with the legal coexistence framework in the EU. Cleaning recommendations based on empirical work (...)	Recommendations by Hanna et. Al 2002 go clearly beyond "easy to clean and many farmers do it routinely"
IFOAM EU	18	whole chapter 3.3	<i>change the underlying concept for this chapter</i>	labelling threshold for unintended and technical unavoidable presence of GMO is used as target value, this does not comply with legislation and is not practicable in the food chain; see general comments
IFOAM EU	19	22-24	<i>Maize pollen deposition is documented in distances up to 800-1000 m (Devos et al 2005), in case of thermals over hot surfaces, pollen may be lifted into upper air layers and transported over significantly longer distances - maize pollen were found event at distances of 3.3 km from the source (Treu & Emberlin 2000; Brauner et al 2004; Brunet et al 2003, Hofmann 2007). Although at distances further than 30–50 m, the levels of pollen dispersion are very low, there is no clear cut-off distance beyond which these levels reach zero (Devos et al 2005). Appropriate steps to avoid the presence of GMO in non-GM-crops in terms of isolation distances must take these findings into account.</i>	1: Yann DEVOS, Dirk REHEUL and Adinda DE SCHRIJVER 2005; Review: The co-existence between transgenic and non-transgenic maize in the European Union: a focus on pollen flow and cross-fertilization (already quoted in the draft) 2: Treu, R. & Emberlin, J. 2000. Pollen dispersal in the crops maize (<i>Zea mays</i>), oilseed rape (<i>Brassica napus ssp oleifera</i>), potatoes (<i>Solanum tuberosum</i>), sugar beet (<i>Beta vulgaris ssp vulgaris</i>) and wheat (<i>Triticum aestivum</i>). A report for the Soil Association 3. Brauner, R., Moch, K. & Christ, H. 2004. Aufbereitung des Wissensstandes zu Auskreuzungsdistanzen. Ökoinstitut e.V. Freiburg. 4. Brunet, Y., Foueillassar, X., Audran, A., Garrigou, D., Dayau, S. & Tardieu, L. 2003. Evidence for long-range transport of viable maize pollen. www.agrsci.dk/gmcc_03/abs_1htm#1 . 5. Hofmann 2007: Gutachten Pollendeposition; http://www.bfn.de/fileadmin/MDB/documents/themen/agrogenteknik/07-05-31_Gutachten_Pollendeposition_end.pdf
IFOAM EU	27	26ff	They may usually be easily controlled by currently applied agricultural techniques and may therefore be considered a negligible source of potential adventitious presence.	Volunteers must be considered in the measures in order to be coherent as they are mentioned before as problem in many regions (southern Germany, Slovenia, Austria and Northern Italy).

From	Page	Line	Contribution	Justification/comment
EuropaBio	27	29...31	Correct the following passage "In three Member States, however, control measures for GM maize volunteers are foreseen by law. In Romania the appropriate measures (destroying and monitoring of fields) may be enforced in case of any GM volunteer appearance"	To our knowledge there are currently no particular measures applicable at farm level with regard to volunteers from GM maize approved for cultivation in Romania. For Part B trials in Romania it is however compulsory to monitor the field for two years and no conventional crops from same species can be grown for two years.
IFOAM EU	27	36ff	The TWG-Maize will not propose any specific management measures aimed at maize volunteer control as in Lithuania, Romania and Slovak Republic already implemented. , as the volunteers (if they appear) are already sufficiently controlled by currently applie	Volunteers must be considered in the measures in order to be coherent as they are mentioned before as problem in many regions (southern Germany, Slovenia, Austria and Northern Italy).
IFOAM EU	27	41	The combine harvester is a possible source of grain co-mingling on the farm due to its (...)	It must be made clear that combines if not intensively cleaned clearly are likely to be sources of contamination and need special attention (compare to grainquality programme Purdue University: http://www.ces.purdue.edu/extmedia/GQ/GQ-49-W.pdf)
Deutscher Bauernverband e.V. Berlin	from 27		Recommendations on volunteers management, storage of seeds, sowing and machine management are proposed in the document. Those issues are already solved in Germany.	
IFOAM EU	28	1 ff	Also Messéan et al. (2006 [118]) assessed the adventitious presence levels due to combine harvesters, whereas Maier et al (2005) found that not all of the previous crop will be removed with the initial flush of non-GM crop and the only sure way to remove all previous grain from a combine is to physically clean the combine and then a flush at least with the harvest from 0.5 hectare to minimize the contamination. But Maier et al 2005 underlined that even after flushes of several hectares traces of previous harvest are spread in the whole combine. When a non-GM field was harvested after the GM field the admixture is significant only in the first trailer collected.	Messean et al (2006) did not conduct own research regarding contamination risks in combines. Source Maier et al 2005, Grainsafe On-farm Quality assurance program, Purdue University

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IFOAM EU	28	4ff	The use of dedicated harvesters eliminates the risk of admixture, while in the case of harvesters which have been cleaned the average risk of admixture was estimated to be 0.1% in the first trailer. When no cleaning was performed the average for the first trailer raised to may contain even 0.4% GM admixture whereas the contamination may not be declared as technically unavoidable if no proper cleaning has taken place. Moreover, even an average contamination risk of 0.1% is too high as this may mean occurrences of higher contamination in some charges - which would exclude the harvest from the GMO free market.	The figures must be put in question as Messean et al (2006) seem to have taken average levels and does not take into account the study of Maier et al 2005 for example. Average levels are not appropriate in this case as contamination needs to be avoided and farmers need protection against contamination to stay in business, not only against an average risk. In Messean 2006, p.32 it is not traceable why Messean counts a zero risk of admixture for trailers type 1 when he counts organic farms with shared machinery in (as organic farms may also share machinery with conventional farms)
IFOAM EU	28	31	<i>According to the polluter pays principle, costs of measures to avoid contamination with GMO as well as for testing samples of GMO free commodities regarding contamination must be carried by the growers of GMO crops and the company which placed the GMO on the market.</i>	see general comments
IFOAM EU	28	39ff	It found that in the 2002-2004 period the impact of Bt maize adoption on gross margins ranged, depending on the particular province, from being neutral to an increase of €122 per hectare per year due to increased yields and reduced pesticide use in GM Bt	Charles M. Benbrook, 2004, Genetically Engineered Crops and Pesticide Use in the United States: The First Nine Years; Gabriel Oyhançabal and Ignacio Narbondo, 2008. Radiografía del agronegocio sojero: Descripción de los principales actores y los impactos socioeconómicos en Uruguay

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IFOAM EU	29	3ff	The costs of cleaning shared machinery were estimated at about 38 € in the case of cleaning a single seed driller, 200-2000 € per cleaning of the combine harvester and around 1.5 € in the case of cleaning a trailer or truck used for transport of GM harvest. Different types of additional costs connected with coexistence were assessed by Bénétrix (2005) [124A] In the case of machinery cleaning the costs of labour were assessed at 7 € per hour (?). In this study the additional costs of collecting of harvest were also assessed; in the case of GM maize the average additional cost was 18,28 €/t, while in the case of non-GM maize the cost increased by 1.82 €/t, if the share of collected GM maize did not exceed 10%.	Most calculated costs are too low for many European countries. Figures for Germany: seed driller: 16-135 Euro; harvest combine 200-2000 Euro; also the costs for cleaning a trailer seem much too low considering how long a person needs to sweep a trailer; additional costs that should be calculated: 1. way back to the farm: fuel and time due to machinery has usually to be cleaned on the farm as the necessary equipment is not available on the field, 2. First or several flushes of harvest combine when harvesting GMO free crops after GMO crops have to be marketed as GMO crop, 3. Possible cost for extra arrangements and insurances in case of shared machinery; see general comments of IFOAM EU and (Schimpf, M. 2006: Exemplarische Analyse zu maschineller Verschleppung von gentechnisch verändertem Pflanzenmaterial beim überbetrieblichen Maschineneinsatz. Diplomarbeit an der Universität Kassel. Fachgebiet Ökologischer Land- und Pflanzenbau); Again: Only after most diligent cleaning and cleaning flushes the contamination may be considered as technical unavoidable; dedicated machinery would be a better solution; the losses due to time delay may hardly be measured - the risk of losing a quality harvest due to weather changes when harvest has to be delayed for cleaning e.g.
COAG Spain	30	21...30	It is not specified how to clean the machine properly	
IFOAM EU	30	27f	Seed drillers can be also routinely emptied and afterwards operated for a small distance on a GM field in sowing position in order to remove any remaining seeds.	Research conducted by Maier et al 2005/Grainsafe Program shows that this approach can not be recommended, contamination risk remains too high.
EuropaBio	33	10...14	Amend the following passage "The use of buffer zones can be recommended only when the same herbicide regime is used in the crop field and the buffer zone. The buffer zones could therefore (currently) only be created around Bt maize fields, while the discard zones protecting the non-GM field can be used in both insect and herbicide resistant maize fields."	The overall statement of this paragraph cannot be supported by EuropaBio. The use of buffer zones should not be subject to a specific herbicide regime, because it does not allow their use for herbicide tolerant GM maize. However, buffer zones are a useful tool for the reduction of cross-fertilisation for any type of GM maize.

From	Page	Line	Contribution	Justification/comment
EuropaBio	33	16...30	amend the passage	In the review of the scientific literature it is acknowledged that the use of buffer zones is a useful tool to reduce cross-fertilisation. However in the best practices for coexistence measures section dedicated to this point there is no concrete measure recommended. We want to highlight that buffer zones are a critical tool to achieve coexistence for situations where it is not possible to implement isolation distances due to the density of farms cultivating maize in many European regions (e.g. the Ebro and Po Valleys). The findings commented in the document about the potential lack of efficiency of buffer zones when the fields are separated by at least 51 m of bare ground are not contradictory to the data showing efficacy of maize pollen barriers for smaller distances, which is precisely where this practice is needed. There is no justification to avoid establishing clear recommendations on it within the best practices.
EuropaBio	33	31...36	amend the passage	Discard zones are also a very effective measure to achieve the coexistence goals. When discussing discard zones it is however important to take into consideration that they will not necessarily be implemented by non-GM farmers, i.e. many GM farmers also grow conventional maize. It is therefore important that the measures for discard zones remain sufficiently flexible to give GM farmers the freedom to choose between buffer zones or discard zones in accordance with their needs.
	34	1...3		
IFOAM EU	33	32ff	Isolation distances must guarantee freedom from contamination for conventional and organic farmers and may not be based on the tolerance of average contamination percentages.	compare comment on chapter 3.3 - tables in chapter 6.3.1 show average values. Distances based on these tables will not protect farmers from contamination. Taking pollen transport through thermals, wind and bees into account, pollen may be transported over kilometers - living maize pollen has been found in heights of 150-1800 m (Brunet, Y., Foueillassar, X., Audran, A., Garrigou, D., Dayau, S. & Tardieu, L. 2003. Evidence for long-range transport of viable maize pollen. www.agrsci.dk/gmcc_03/abs_1htm#1 .) The tolerance of contamination levels would contradict the legislation as technical avoidability is given through longer distances.

From	Page	Line	Contribution	Justification/comment
COCEREAL	35	10,11,12	hardly applicable (use of dedicated harvesters or using the same harvester for non-GM maize prior to GM maize)	At harvesting step, farmers often use the combine harvesters of rival private companies and all farmers need them in the same period (two months long). So it is difficult to control this step by through cleaning because everybody wants to go quickly
IFOAM EU	35	13	Should this be impossible, any cobs and/or whole plants remaining on the front of the harvester should be removed before moving from the GM field to a conventional one. Harvesters should be flush-cleaned by harvesting non-GM maize from at least 2000 m2. H	This is no appropriate method of cleaning. Either proper cleaning has to be carried out (takes about 5 hours with compressed air plus at least one cleaning flush) and documented or the GM-free fields have to be harvested first, then the GMO fields.
COCEREAL	35	19...22	-	It is possible to have a good segregation of maize even at the drying step because operators know quite precisely the number of extraction which corresponds to the transition between two types of maize. At the beginning of drying non GM maize we have to switch from a GM cell towards a non-GM cell at about two or more extractions after the transition number to be sure that there are not any more GM grains.
IFOAM EU	35	22	Should this be impossible the dryer should be cleaned in a suitable way <i>the cleaning process has to be documented, the costs have to be covered by the GM grower.</i>	see general comments
COCEREAL	35	25...29	hardly applicable (use of dedicated trucks or cleaning of trucks after transportation of GM maize)	Dedicated trucks or thorough cleaning of trucks after transportation of GM material seem to us not probable solution because hauliers want to have maximum of activity of their trucks for harvesting. On the contrary, controlling the absence of remaining kernels before loading is already a good practice that is required by the GTP guide.
IFOAM EU	35	36ff	The facilities/compartments where the GM harvest was stored should be thoroughly cleaned after the commodity is removed. The effectiveness of cleaning should be checked by visual inspection. The cleaning process has to be documented; the costs have to be covered by the GM grower.	see general comments

From	Page	Line	Contribution	Justification/comment
Europa Bio	36	1...15	Amend the passage	EuropaBio does not support making special classifications for situations that are more impacted by proposed coexistence measures. In order to provide freedom of choice to all farmers it is very important to provide proportional coexistence measures while ensuring flexibility in the use of a wide range of such measures in accordance with the field specificities and the farmers' needs. These technical measures should be equally available for all field sizes and include isolation distances, buffer zones, discard zones, border rows and temporal isolation. Communication and voluntary mutual agreements between neighbouring farmers can provide practical solutions for more difficult situations. Disproportional measures including upfront specific classification of areas, are non-democratic measures that will prevent all farmers from having equal access to all agricultural production systems.
IFOAM EU	36	31	Socio-economic impacts Regional impacts of the costs of coexistence (dedicated infrastructures as seed drillers, harvest machinery, trailers, dryers, storages) for the organic and (non-G	Impacts on regional economies are not yet quantified.
IFOAM EU	42	20	Maize pollen deposition is regularly documented in distances up to 800-1000 m (Devos et al 2005), in case of thermals over hot surfaces, pollen may be lifted into upper air layers and transported over significantly longer distances - maize pollen were found event at distances of 3.3 km from the source (Treu et al 2000; Brauner et al 2004; Brunet et al 2003, Hofmann 2007). Although at distances further than 30-50 m, the levels of pollen dispersion are very low, there is no clear cut-off distance beyond which these levels reach zero (Devos et al 2005). Appropriate steps to avoid the presence of GMO in non-GM-crops in terms of isolation distances must take these findings into account. Isolation distances must guarantee freedom from contamination for conventional and organic farmers and may not be based on the tolerance of average contamination percentages.	See comment page 26 and comment page 33

