

## **SCIENTIFIC REPORT OF EFSA**

### **Outcome of the Public Consultation on the Project Plan for the Development of a new Guidance Document on emissions from protected crops systems**

**Prepared by the PPR Unit**

**(Question No EFSA-Q-2008-260)**

**Issued on 29 April 2009**

#### **Background**

EFSA's Panel on Plant Protection Products and their Residues (PPR Panel) performed a public consultation on the Project Plan for the development of a new Guidance Document (GD) on emissions from protected crops systems (e.g. greenhouses and cultivations grown under cover). The project plan prepared by the PPR Panel's working group (WG) on emissions from protected crops was published for public consultation on 20<sup>th</sup> October 2008 and open for public consultation until 15<sup>th</sup> December 2008.

The intention of the development of this new GD is to provide an overview of protected crop system distribution throughout Europe and to give guidance on estimating the importance of emission routes for plant protection products from these systems to environmental compartments.

There is currently no definition that demarcates the emission of a protected crop application from the emission of a field application. Neither is there agreement on the definitions of individual protected/covered crop systems like a specific type of greenhouse. Nevertheless, several active ingredients have been listed in Annex I of Directive 91/414/EEC with reference to use in greenhouses.

A number of Member States have expressed interest in development of guidance in this area in response to a consultation on Guidance Documents by the Director of Sciences from EFSA in a letter dated 3 July 2006 sent via the Standing Committee on the Food Chain and Animal Health.

The foreseen guidance will allow a future working group to develop emission and exposure scenarios for protected crop systems.

## Comments received

EFSA received 25 comments on the project plan (see table 1).

**Table 1: Comments received in the public consultation on the project plan**

Organisation	stakeholder	number of comments
Dr. Knoell Consult	consulting	2
European Crop Protection Association (ECPA)	industry association	3
Federal Environment Agency (UBA)	authority	4
Finnish Environment Institute	authority	1
Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA)	authority	2
National Farmers' Union of England and Wales) (NFU)	Farmers' association	5
Pesticides Safety Directorate (PSD)	authority	2
SCC GmbH	consulting	2
Swedish Chemicals Agency (KEMI)	authority	4
Total		25

All comments received were scrutinized and subsequently tabulated with reference to the author(s) and the section of the draft opinion to which the comment referred. Duplicate comments received from the same contributor appear only once in the table and comments submitted by individuals in a personal capacity are listed anonymously. Comments submitted formally on behalf of an organization appear with the name of the organization. All original comments received are listed in the end of this report.

## Screening and evaluation of the comments received<sup>1</sup>

The main issues addressed are summarized below. Comments will not be answered individually.

### 1. Consider the huge variety in protected crop structures throughout the EU

*It was mentioned several times that EFSA needs to be aware of the big variability of protected crop structures in different EU MSs. Since the structure of the protecting system has an important influence on potential emissions, the future GD should include clear definitions covering the varieties of different structures.*

EFSA completely agrees and is fully aware of this important task. The EFSA WG is preparing a database for gathering data on protected crop structures and their distribution for the whole EU. Data collection is expected to be finalised by the middle of 2009. Based on the database,

<sup>1</sup> Please note that the European Food Safety Authority may have considered some comments to be outside the instructions provided for in the terms of use of the public consultation.

definitions currently used in the WG will be refined and underpinned with further explanations.

## **2. Remarks regarding the data collection on protected crop system distribution in EU**

*The stakeholders proposed to base the data collection not only on data available from EUROSTAT, since this might not reflect all local variations in detail. Instead, also local statistics should be included in the data collection.*

The procedure agreed on in the EFSA Steering Committee for the data collection comprises a first step whereby data which is easily available from national official statistical offices will be collected. In a second step, data gaps identified during the first step will be filled by approaching national and regional institutions and growers' associations. Data sources will always be included in the database under development to assure traceability of data as part of data quality assurance.

## **3. The permanence of protected crop structures is of high relevance for estimating emissions**

*Many protection structures are covering the crops not for the full growing season but only for a limited period of time. For the estimation of emissions from these structures, it is essential to know when and for how long a certain crop is covered.*

Indeed, the covering time plays an important role and will be taken into consideration in the guidance document. Protection systems which cover the crop for only a very limited time, such as mulching, were excluded in the project plan. Crops which are covered during application of plant protection products (PPPs) and for a significant time thereafter are considered protected systems and will be regarded as usual field crops after uncovering. A clear definition of the different protection structures and strict boundary conditions will be developed in the WG.

## **4. Consider all available literature**

*Stakeholders asked EFSA to take into account all available literature on that topic and several reports and publications were cited as reference to consider for the development of the new GD.*

The EFSA WG performed a systematic literature search, aimed at finding all relevant literature concerning emissions from protected crop systems. The literature found is screened by WG members and will be included for developing the guidance and describing the current knowledge available. Literature sources suggested in specific comments had already been partly discussed in the WG or will be reviewed now in the ongoing process.

## **5. Involvement of stakeholders during the development of the GD**

*Stakeholders asked to be further involved in the development process and to be heard as experts in technical hearings or in workshops.*

EFSA involves stakeholders in the GD development process, as was done with this public web-consultation. A stakeholder workshop is planned to be held in autumn 2009 in order to

present the current status of the work and give the opportunity for stakeholders to contribute. A public web-consultation is also foreseen at the end of the development process.

## 6. Relevant receptors to take into account

*Stakeholders wish to have aquatic organisms included as receptors in the project plan as well as long-term soil pollution.*

The project plan will be updated regarding receptors to be considered. This EFSA WG is exclusively defining emissions of PPPs from protected crop systems and not dealing with exposure. Emission receptors are environmental compartments, such as soil outside the structure, surface and ground water, air, sewage treatment plants.

Regarding the long-term soil pollution of soil inside / below the greenhouse, the WG is still defining the boundary for what is to be considered an emission and will take this into account also in relation to the permanence of structures.

## 7. Consider the approach currently under development for biocides

*The WG was informed about currently ongoing developments of emission scenarios of biocides, which should be considered for the developments for PPPs.*

The WG is collecting information about the ongoing developments in the field of biocide emissions and will consider the approach further for PPPs if appropriate.

## 8. Development of models and scenarios

*Several stakeholders asked for a clear definition of exposure scenarios and for the development of simple models which might be included e.g. in FOCUS models.*

The development of scenarios and models is outside the remit of this WG. This WG has the task of developing an inventory of protected crop systems and their distribution throughout Europe as well as defining and ranking emission routes of PPPs from these systems. The foreseen guidance developed by this WG will allow a future working group to develop emission and exposure scenarios for protected crop systems. EFSA agrees however that the development of models is desirable.

## 9. Consider the different climatic conditions throughout the EU

*Several stakeholders pointed out that it is crucial to take into account the big variations in climatic conditions in the different European Member States (MSs) when characterising the potential emissions of PPPs from protected crop systems.*

EFSA completely agrees and is fully aware of this important issue. It is the task of the EFSA WG to develop an inventory of protected crop systems and their distribution throughout Europe as well as defining and ranking emission routes of PPPs from these systems. The relative relevance of specific emissions of PPPs depends on different influencing factors, one of which is climatic conditions. The development of scenarios considering climatic conditions, however, is outside the remit of the current WG and will be the task of a subsequent WG.

## 10. Treatment of plant seedlings in pots

*Treatment of plant seedlings in pots in greenhouses which are later on planted outside in the open field should be considered as emission of PPPs and the time interval between treatment and planting outside should be taken into account.*

EFSA will take this issue into consideration.

## 11. Guidance needed for application of soil fumigation

*No framework for risk assessment of soil fumigants is currently available and should therefore be developed by the EFSA WG.*

Soil fumigation will be considered as one possible application type of PPPs in all relevant combinations with protected crop structures.

## 12. Consideration of organic farming and conservation agriculture practices

*Organic farming and conservation agriculture practices were stated to be excluded in the project plan, but the reason for doing so is not explained.*

The explanation in the project plan will be made more clear. Conventional PPPs applied in organic farming are considered as PPPs for conventional farming. The project plan will be revised accordingly.

## Incorporation of comments in the opinion

The comments from the public consultation on the project plan were all discussed by the EFSA Working Group on emissions from protected crops (Environmental Fate) at a WG meeting in February 2009. The comments and the proposed literature from stakeholders will be considered further for the development of the new Guidance Document. Comments received were very appropriate and of high value for the PPR Panel and the Working Group on emissions from protected crops. EFSA thanks all stakeholders for their contributions.

## References:

The revised project plan and additional supporting information can be found on the EFSA webpages

[http://www.efsa.europa.eu/EFSA/ScientificOpinionPublicationReport/efsa\\_locale-1178620753812\\_OtherScientificAndTechnicalDocuments.htm](http://www.efsa.europa.eu/EFSA/ScientificOpinionPublicationReport/efsa_locale-1178620753812_OtherScientificAndTechnicalDocuments.htm)

## Comments received

This compilation contains the comments received via the electronic form after the public consultation which closed on December 15<sup>th</sup>, 2008. All comments received regarding the Project Plan for the development of a new guidance document on emissions from protected crop systems are listed.

Duplicated comments received from the same contributor appear only once and comments submitted by individuals in a personal capacity are published anonymously. Comments submitted formally on behalf of an organization appear with the name of the organization.

Contributor	Section	Comment
Finnish Environment Institute	0 General comments on the project plan	<p>The emission scenarios for different product types of biocides area under development currently. It might benefit also this project, if the possible overlapping would be checked. At least a few biocidal product types might have similar emissions routes to sewage treatment plants or into air compared to greenhouses.</p> <p>Concerning the potential receptors of the emissions (lines 92-94): aquatic organisms should also be mentioned as potentially relevant non-target organisms. The emissions to water courses from greenhouses may be either via sewage systems or via drainage.</p> <p>Also the long term soil pollution from the greenhouse enterprises should be taken into account in the emission scenarios. For instance in Finland we have lots of cases, where the soil has been heavily polluted with plant protection products and restrictions are needed for the further land use after the greenhouse enterprise has finished. In greenhouse cultivation also more hazardous substances may be authorised that fail the risk assessment for outdoor uses.</p> <p>The cold climatic conditions in Northern Europe should be fully taken into account in the emission scenarios from greenhouses, though the temperature inside the greenhouses is favourable.</p>
Swedish Chemicals Agency (KEMI)	0 General comments on the project plan	<p>General: We think it is both desirable and with some priority to try to develop some sort of models to be incorporated by FOCUS (or equal), e.g. a greenhouse scenario for FOCUS surface water steps 1-4.</p>
National Farmers' Union of England and Wales	0 General comments on the project plan	<p>In identifying potential emission routes, the UK horticultural industry has funded some work in the past looking at irrigation (and hence pesticide) run-off from brassica propagation glasshouses (concrete and polythene covered floors). The study was unable to detect significant levels of run-off solution, so the risk of any potential problem was considered to be very low in this particular situation. This report should be available from the Horticulture Development Company (<a href="http://www.hdc.org.uk/">http://www.hdc.org.uk/</a>).</p>

Contributor	Section	Comment
ECPA	0 General comments on the project plan	<p>ECPA welcomes the clear documentation of the project plan, which assists in outlining the aims, justification, process and likely timeframe for the development of this new guidance document.</p> <p>We do have several comments and respectively request that these be considered in preparing the document.</p> <ul style="list-style-type: none"> <li>- The project should take into consideration the results presented in the FOCUS air report (FOCUS 2008, "Pesticides in Air: Considerations for Exposure Assessment". Report of the FOCUS Working Group on Pesticides in Air, EC Document Reference SANCO/10553/2006 Rev 2 June 2008), and in particular those sections relating to emissions to air from greenhouses.</li> <li>- Covered crop operations can vary in the different member states to a great extent and we encourage the EFSA project team to cover all the different operations in all the member states in order to develop a truly valid EU overview over the actual practices.</li> </ul>
ECPA	2.1 Project structure	<p>page 3, line 41: Due to the complexity of the task we agree that further consultation outside the actual project team is necessary. In order to get additional expertise from involved stakeholders (plant protection companies, grower associations etc. ) concerning the practical use conditions, we recommend that technical meetings be considered during the development of the guidance document with these stakeholders. Furthermore, a workshop midway during the work as well as prior to the finalisation of the guidance document should be held with stakeholders to assist in ensuring the document is robust and practicably usable. Participants of the workshop should be provided access to the draft guidance document well in advance so as to be well prepared and to facilitate a more productive discussion.</p>
National Farmers' Union of England and Wales	2.2 Relations to other projects and external partners	<p>Lines 41-43 refer to consultation and communication with stakeholders.</p> <p>The NFU represents the interests of more than 1,100 grower businesses using protected crop systems in the UK. As such, the NFU would like be a part of future EFSA consultation and communication with stakeholders on this issue.</p>
Dr. Knoell Consult	2.3 Outsourcing	<p>Our company has experience with environmental exposure assessments for protected crops for the last &gt;6 years. The aim to define a meaningful framework for the risk assessment of protected crops is clearly supported by us as a dividing rule is missing "to the field". We can offer to help with our experience when needed.</p> <p>The focus of our work was calculating PECs for the different environmental compartments including higher-tier methods, like use of statistics, GIS and local information.</p>
Swedish Chemicals Agency (KEMI)	2.4.1 Background	<p>General: It is important to incorporate all available data on (pesticide) leaching from greenhouses as such reports exist (e.g. a norwegian report on pesticide leaching from greenhouses).</p>

Contributor	Section	Comment
National Farmers' Union of England and Wales	2.4.1 Background	<p>Lines 50-54, and 57-59, make reference to the Directive 91/414/EEC.</p> <p>The project Working Group will need to keep up to date on the current form of the proposed Regulation Placing Plant Protection Products on the Market, which is set to replace the existing 91/414 Directive.</p> <p>While these proposals may not impact upon the focus of the project directly, they will certainly impact upon the relevance of this work, as they could result in the loss of all the 'protected crop only' active ingredients which have prompted this project to be undertaken.</p>
Pesticides Safety Directorate	2.4.3 Aim of the project	<p>Line 90: Given that some candidate Member States are due to accede to the EU in 2010, consideration should be given to specifically including these MS in this process.</p>
Federal Environment Agency (UBA)	2.4.3 Aim of the project	<p>Comment to line 92: Please note that a research project assessing the environmental exposure of pesticides used in greenhouses and applied by spray application was carried out in Germany that is cited in the FOCUS Air Report (SANCO/10553/2006 Rev 2 June 2008, page 32). In these studies measurements of emissions and depositions of pesticides in vicinity of the buildings were performed. In a further project these data were evaluated by means of statistical analysis to determine the factors which affected volatilisation, transport and deposition of pesticides used in greenhouses.</p> <p>The full reports in German are available as downloads from the website of Umweltbundesamt (<a href="http://www.umweltbundesamt.de/uba-info-medien/search-public.php">http://www.umweltbundesamt.de/uba-info-medien/search-public.php</a> search for author):</p> <p>1. Projektleitung: J. Siebers, H. Schmidt, U. Meier (Teilvorhaben 1); D. Klemenz (Teilvorhaben 2): „Pflanzenschutzmittelemissionen aus Gebäuden: Messung der Emissionen und der damit verbundenen Belastung von Wasser, Boden und Luft in unmittelbarer Gebäudenähe“, Teil 1 (Gewächshäuser) und 2 (Vorratslager); Biologische Bundesanstalt für Land- und Forstwirtschaft in Braunschweig und Kleinmachnow; UFOPLAN 200 67 407, UBA-Texte 63/2003</p> <p>2. Gregor Tintrup gen. Suntrup, Gunnar Fent und Roland Kubiak: „Emissionen von Pflanzenschutzmittel aus Gebäuden – Validierung eines Verflüchtigungsmodells für den Nahbereich“ (FKZ 360 03 026); DLR-Rheinpfalz – Abteilung Agrarökologie, UBA-Texte 47/2004</p>
Swedish Chemicals Agency (KEMI)	2.4.3 Aim of the project	<p>line 94. We feel that the consideration should be towards non-target organisms. This group should include birds, terrestrial mammals but also all relevant aquatic organisms.</p>
Swedish Chemicals Agency (KEMI)	2.4.3 Aim of the project	<p>line 77. We feel that it is important that the different classes are very precisely defined and the criterias for fulfilling them. We would like to stress the importance not to leave this open at any point, or up to member states, in order to get harmonisation.</p>
Dr. Knoell Consult	2.4.3 Aim of the project	<p>I do not understand why the environmental data should explicitly be "not geo-referenced". By definition all data describing the environment has to be georeferenced. Maybe the sentence was meant differently.</p> <p>Our company did some exposure assessment for green/glasshouses in the past and in some cases geo-referenced data was used. I do not understand why this is excluded, as it was very helpful for us.</p>



Contributor	Section	Comment
National Farmers' Union of England and Wales	2.4.3 Aim of the project	<p>Line 76 comments on what is and what isn't a covered cropping system. The project plan does not make the excluded practices as clear as in the 'Supporting document for background information: Examples of protected crop systems'.</p> <p>To clarify, the NFU supports the comments in the supporting document, and considers that crops grown under floating fleece or perforated polythene temporary covers (as widely used on many UK vegetable and some soft fruit crops) should not be included as part of this project.</p> <p>Lines 78-79 talk about identifying the relevance of emission routes for 'classes of covered systems'. When determining these 'classes', the Working Group must take into account the wide variation in the performance of constructions. For example, there will be new glasshouses that are effectively closed systems, and there are older glasshouses that could not be considered closed systems.</p> <p>Line 97 makes reference to the distinction between permanent and temporary structures. In the UK there has been considerable discussion in recent years regarding the issue of 'permanence' of polytunnel structures (walk-in tunnels). This discussion has formed part of a wider UK debate on agricultural planning policy.</p> <p>Whether or not a polytunnel is treated as a temporary or permanent structure is always a matter of fact and degree, which would be determined on the particular circumstances of each case. The determination is made on the basis of a few factors, including size, permanence, degree of physical attachment, and physical alteration to the land.</p> <p>In general, the majority of polytunnels in the UK are judged to be temporary structures. However, there are some circumstances where growers would seek for polytunnels to be regarded as permanent structures, such as when the extent of the infrastructure and degree of physical attachment is significant, e.g. some substrate systems (soilless/bag culture systems).</p> <p>Clearly, from a UK polytunnel perspective, it would not be possible to apply a definitive 'permanent or temporary' classification, as this varies from case to case. This is supported by the UK Government's (Department for Communities and Local Government) current position that states that the planning status of a particular polytunnel (i.e. whether or not it is a permanent structure) should be assessed on a case by case basis.</p> <p>Clearly, the degree of permanence of any structure will have a direct impact on extent of the potential risks to the environmental compartments surrounding it. So the length of time it is in situ is an important consideration for the purposes of this project. However, the example above shows how the label of 'permanent' or 'temporary' can be applied on a structure by structure basis.</p> <p>Line 103 comments that organic and 'conservation' agriculture practices are not to be considered within this project. Considering that organic production uses Plant Protection Products covered by Directive 91/414/EEC, and that these products are used with the same kinds of constructions, cultivations systems, and application methods as with non-organic crops, the NFU can see no justifiable reason not to include organic practices within the scope of this project. We do not understand what is meant specifically by the term 'conservation agriculture', but would expect the comments given above with respect to organic practices would also apply.</p>

Contributor	Section	Comment
SCC Gmbh	2.4.3 Aim of the project	line 92-94 It would be important to clearly define affected compartments/receptors for all possible crop protection/cultivation system combinations.
SCC Gmbh	2.4.3 Aim of the project	line 82/83 With respect to the development of emission and exposure scenarios, it would be very important that it is clearly defined what emission/exposure scenarios are to be used for which kind of crop protection and cultivation system. Where possible, Tier 1 emission/exposure assessments should be kept as simple as possible (e.g. similar to the Dutch model for greenhouse uses). If that is not feasible (e.g. in partially covered systems like plastic shelters or soil fumigation) and for higher Tier assessments, the use of simple add-ons or assumptions to existing models should be defined.
ECPA	2.4.3 Aim of the project	page 5, line 103: Organic farming and conservation agriculture practices should be included in the exercise. In these practices, substances are used and the impact of these on the environment also needs to be assessed.
INIA	2.4.3 Aim of the project	Aim of the project  - No framework is developed for the environmental risk assessment for soil fumigants: an approach for ERA of this kind of pesticides is desirable since some of them are used as alternatives to Methyl Bromide in protected crops.  - Importance of protected crops in the Mediterranean countries: FAO has launched a document describing the importance of protected crops in the Mediterranean countries. This document describes the different technologies and materials used for the management of these crops under the specific Mediterranean climatic conditions. (available in the website <a href="http://www.fao.org/docrep/005/s8630s/s8630s00.htm">http://www.fao.org/docrep/005/s8630s/s8630s00.htm</a> ) Other works on the management of Mediterranean glasshouses are published in Cahier Options Méditerranéennes vol .31 Available in the following link:  ( <a href="http://ressources.ciheam.org/util/search/detail_numero.php?mot=744&amp;langue=fr">http://ressources.ciheam.org/util/search/detail_numero.php?mot=744&amp;langue=fr</a> )  An additional interesting work is Antón, A , Montero J.I., Muñoz, P and Castells, F (2004) "Comparison of toxicological impacts of integrated and chemical pest management in Mediterranean greenhouses , Chemosphere 54 1225-1235.  We consider that these documents may be used in the scope of this project.
Pesticides Safety Directorate	2.4.4 Deliverables of the Working Group	Lines 104 – 109: Point of clarification: it would appear from the work plan that the guidance document will not include development of exposure scenarios. Will this be done at a later date after the work groups have defined importance of emission routes from protected cropping situations?

Contributor	Section	Comment
Federal Environment Agency (UBA)	2.4.4 Deliverables of the Working Group	Comment to line 108: With respect to line 84-86 we suggest to add another point: 3. Guidance on the exposure assessment for pesticide uses in crop protection systems with respect to the inclusion in Annex I (directive 91/414/EEC).
Federal Environment Agency (UBA)	2.4.4 Deliverables of the Working Group	Comment to line 108: We would appreciate if there would be considerations on the time interval between an application of a pesticide on seedlings in pots in a greenhouse and the planting of the growth seedlings in the open fields and the possible exposure of soil by the applied and not yet degraded pesticides via root balls.
National Farmers' Union of England and Wales	2.4.4 Deliverables of the Working Group	This project aims to provide competent authorities with the practical information they require to be able to make judgements on the inclusion of pesticides in Annex I (Directive 91/414/EEC) and national authorisations (lines 84-86 refer).  Considering the aim of this project is to understand the environmental fate of Plant Protection Products (and not the exposure of operators, residents or bystanders), and that the project outputs will impact upon the future availability of Plant Protection Products, the NFU believes the project Working Group must ensure all their guidance (as referred to in lines 108-109) is based on demonstrable risk, and not theoretical hazard.  In the context of guidance made on the basis of risk-based judgements, the NFU considers the Working Group should also recommend that when implementing the outcomes of this project, competent authorities ensure their actions are fit-for-purpose, and undertake cost-benefit analyses where relevant.
Federal Environment Agency (UBA)	2.4.5 Data Collection	Comment to line 113: Will there be considerations on the underground of the systems, too? It would be useful to collect data from the structure and the techniques of the crop protection systems as well as data from the cultivation system (e.g. with or without soil, drainage systems etc.).
INIA	2.4.5 Data Collection	Data collection  We think that the data collection should be also based on the local statistics because available information in EUROSTAT did not reflect the local production in some countries.