



EUROPEAN COMMISSION
HEALTH & CONSUMER PROTECTION DIRECTORATE-GENERAL

Directorate D - Food Safety: Production and distribution chain
Unit D.3 - Chemicals, contaminants and pesticides

Glufosinate
SANCO/10453/2006 final
25 April 2007

Review report for the active substance **glufosinate**
finalised in the Standing Committee on the Food Chain and Animal Health at its meeting on
24 November 2006
in view of the inclusion of glufosinate in Annex I of Directive 91/414/EEC

1. Procedure followed for the re-evaluation process

This review report has been established as a result of the re-evaluation of glufosinate, made in the context of the work programme for review of existing active substances provided for in Article 8(2) of Directive 91/414/EEC concerning the placing of plant protection products on the market, with a view to the possible inclusion of this substance in Annex I to the Directive.

Commission Regulation (EC) No 451/2000¹ laying down the detailed rules for the implementation of the second and third stages of the programme of work referred to in Article 8(2) of Council Directive 91/414/EEC, as last amended by Regulation (EC) No 1490/2002², has laid down the detailed rules on the procedure according to which the re-evaluation has to be carried out. Glufosinate is one of the existing active substances covered by this Regulation.

In accordance with the provisions of Article 4 of Regulation (EC) No 451/2000, Aventis Crop Science GmbH notified to the Commission of their wish to secure the inclusion of the active substance glufosinate in Annex I to the Directive.

In accordance with the provisions of Article 5 of Regulation (EC) No 451/2000, the Commission, designated Sweden as rapporteur Member State to carry out the assessment of glufosinate on the basis of the dossiers submitted by the notifiers. In Regulation (EC) No 703/2001³ the Commission specified furthermore that the deadline for the notifiers with regard to the submission to the rapporteur Member States of the dossiers required under Article 6(2) of Regulation (EC) No 451/2000, as well as for other parties with regard to further technical and scientific information was 30 April 2002.

Bayer CropScience (former Aventis CropScience) GmbH submitted by the deadline a dossier to the rapporteur Member State which did not contain substantial data gaps, taking into account the supported uses. Therefore Bayer CropScience was considered to be the main data submitter.

¹ OJ No L 55, 29.02.2000, p.25.

² OJ No L 224, 21.8.2002, p.23.

³ OJ No L 98, 7.4.2001, p. 6.

In accordance with the provisions of Article 8(1) of Regulation (EC) No 451/2000, Sweden submitted on 03 January 2003 to the EFSA the report of their examination, hereafter referred to as the draft assessment report, including, as required, a recommendation concerning the possible inclusion of glufosinate in Annex I to the Directive. Moreover, in accordance with the provisions of Article 8(2) of Regulation (EC) 451/2000, the Commission and the Member States received also the summary dossier on glufosinate from Bayer CropScience, on 1 September 2000.

In accordance with the provisions of Article 8 of Regulation (EC) No 451/2000, the EFSA organised the consultation on the draft assessment report by all the Member States as well as by Bayer CropScience being the main data submitters, on 28 April 2003 by making it available.

The EFSA organised an intensive consultation of technical experts from a certain number of Member States, to review the draft assessment report and the comments received thereon (peer review).

In accordance with the provisions of Article 8 (7) of Regulation 451/2000 the EFSA sent to the Commission its conclusion on the risk assessment [Conclusions regarding the peer review of the pesticide risk assessment of the active substance glufosinate (finalised: 14 March 2005)⁴]. This conclusion refers to background document A (draft assessment report) and background document B (EFSA peer review report).

In accordance with the provisions of Article 8 (7) of Regulation (EC) No 451/2000, the Commission referred on 23 September 2005 a draft review report to the Standing Committee on the Food Chain and Animal Health, for final examination. The draft review report was finalised in the meeting of the Standing Committee on 23 September 2005.

The present review report contains the conclusions of the final examination by the Standing Committee. Given the importance of the conclusion of the EFSA, and the comments and clarifications submitted after the conclusion of the EFSA (background document C), these documents are also considered to be part of this review report.

2. Purposes of this review report

This review report, including the background documents and appendices thereto, has been developed and finalised in support of the Directive 2007/25/EC concerning the inclusion of glufosinate in Annex I to Directive 91/414/EEC, and to assist the Member States in decisions on individual plant protection products containing glufosinate they have to take in accordance with the provisions of that Directive, and in particular the provisions of article 4(1) and the uniform principles laid down in Annex VI.

This review report provides also for the evaluation required under Section A.2.(b) of the above mentioned uniform principles, as well as under several specific sections of part B of these principles. In these sections it is provided that Member States, in evaluating applications and granting authorisations, shall take into account the information concerning the active substance in Annex II of the directive, submitted for the purpose of inclusion of the active substance in Annex I, as well as the result of the evaluation of those data.

⁴ *The EFSA Scientific Report* (2005) 27, 1-81

In accordance with the provisions of Article 8(9) of Regulation (EC) No 451/2000, Member States will keep available or make available this review report for consultation by any interested parties or will make it available to them on their specific request.

The information in this review report is, at least partly, based on information which is confidential and/or protected under the provisions of Directive 91/414/EEC. It is therefore recommended that this review report would not be accepted to support any registration outside the context of Directive 91/414/EEC, e.g. in third countries, for which the applicant has not demonstrated to have regulatory access to the information on which this review report is based.

3. Overall conclusion in the context of Directive 91/414/EEC

The overall conclusion from the evaluation is that it may be expected that plant protection products containing glufosinate will fulfil the safety requirements laid down in Article 5(1)(a) and (b) of Directive 91/414/EEC. This conclusion is however subject to compliance with the particular requirements in sections 4, 5, 6 and 7 of this report, as well as to the implementation of the provisions of Article 4(1) and the uniform principles laid down in Annex VI of Directive 91/414/EEC, for each glufosinate containing plant protection product for which Member States will grant or review the authorisation.

Furthermore, these conclusions were reached within the framework of the uses which were proposed and supported by the main data submitter and mentioned in the list of uses supported by available data (attached as Appendix II to this review report).

Extension of the use pattern beyond those described above will require an evaluation at Member State level in order to establish whether the proposed extensions of use can satisfy the requirements of Article 4(1) and of the uniform principles laid down in Annex VI of Directive 91/414/EEC.

The following reference values have been finalised as part of this re-evaluation:

ADI:	0.021 mg/kg bw/day
ArfD:	0.021 mg/kg bw
AOEL:	0.0021 mg/kg bw/day

With particular regard to residues, the review has established that the residues arising from the proposed uses, consequent on application consistent with good plant protection practice, have no harmful effects on human or animal health. The Theoretical Maximum Daily Intake (TMDI; excluding water and products of animal origin) for a 60 kg adult is 14 % of the Acceptable Daily Intake (ADI), based on the FAO/WHO European Diet (August 1994).

Additional intake from water and products of animal origin are not expected to give rise to intake problems.

Estimates of acute dietary exposure of adults and toddlers revealed that the Acute Reference Dose (ARfD) in apples would not be exceeded (5% for women of *child bearing potential*, 2% for adults of *general population* and 12% for toddlers.)

The review has identified one acceptable exposure scenario for operators in orchards, but the exposure scenarios in maize and potato were not acceptable. Several acceptable exposure scenarios for workers and bystanders were identified. However, all exposure scenarios require to

be confirmed for each plant protection product in accordance with the relevant sections of the above mentioned uniform principles.

The review has also concluded that under the proposed and supported conditions of use there are no unacceptable effects on the environment, as provided for in Article 4 (1) (b) (iv) and (v) of Directive 91/414/EEC, provided that certain conditions are taken into account as detailed in section 6 of this report.

4. Identity and Physical/chemical properties

The main identity and the physical/chemical properties of glufosinate are given in Appendix I.

There are no FAO specifications for glufosinate at the moment this review report was written.

The review has established that for the active substance notified by the main data submitter none of the manufacturing impurities considered are, on the basis of information currently available, of toxicological or environmental concern.

5. Endpoints and related information

In order to facilitate Member States, in granting or reviewing authorisations, to apply adequately the provisions of Article 4(1) of Directive 91/414/EEC and the uniform principles laid down in Annex VI of that Directive, the most important endpoints were identified during the re-evaluation process. These endpoints are listed in the conclusion of the EFSA, and at section 3 of this report.

6. Particular conditions to be taken into account on short term basis by Member States in relation to the granting of authorisations of plant protection products containing glufosinate

On the basis of the proposed and supported uses (as listed in Appendix II), the following particular issues have been identified as requiring particular and short term attention from all Member States, in the framework of any authorisations to be granted, varied or withdrawn, as appropriate:

In assessing applications to authorise plant protection products containing glufosinate for uses other than in apple orchards, notably as regards the operator and consumer exposure, Member States shall pay particular attention to the criteria in Article 4(1)(b), and shall ensure that any necessary data and information is provided before such an authorisation is granted.

Furthermore, in this overall assessment Member States must pay particular attention to:

- the operators, workers and bystanders safety. Conditions of authorisation should include protective measures, where appropriate;
- the potential for groundwater contamination, when the active substance is applied in regions with vulnerable soil and/or climatic conditions,
- the protection of mammals, non-target arthropods and non-target plants.

Conditions of authorisation should include risk mitigation measures, where appropriate.

The concerned Member States shall request the submission of further studies to confirm the risk assessment for mammals and non-target arthropods in apple orchards. They shall ensure that the notifier at whose request glufosinate has been included in this Annex provide such studies to the Commission within 2 years from the entry into force of this Directive.

7. List of studies to be generated

No further studies were identified which were at this stage considered necessary in relation to the inclusion of glufosinate in Annex I under the current inclusion conditions.

Some endpoints however may require the generation or submission of additional studies to be submitted to the Member States in order to ensure authorisations for use under certain conditions.

The list of studies to be generated, still ongoing or available but not peer reviewed can be found in the relevant part of the EFSA Scientific report (page 36).

8. Information on studies with claimed data protection

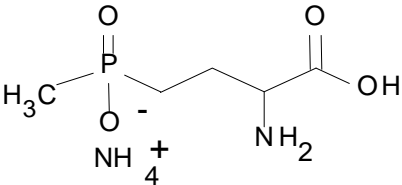
For information of any interested parties, the rapporteur Member State will keep available a document which gives information about the studies for which the main data submitter has claimed data protection and which during the re-evaluation process were considered as essential with a view to annex I inclusion. This information is only given to facilitate the operation of the provisions of Article 13 of Directive 91/414/EEC in the Member States. It is based on the best information available but it does not prejudice any rights or obligations of Member States or operators with regard to its uses in the implementation of the provisions of Article 13 of the Directive 91/414/EEC and neither does it commit the Commission.

9. Updating of this review report

The information in this report may require to be updated from time to time in order to take account of technical and scientific developments as well as of the results of the examination of any information referred to the Commission in the framework of Articles 7, 10 or 11 of Directive 91/414/EEC. Any such adaptation will be finalised in the Standing Committee on the Food Chain and Animal Health, in connection with any amendment of the inclusion conditions for glufosinate in Annex I of the Directive.

APPENDIX I**Identity, physical and chemical properties**

GLUFOSINATE

Common name (ISO)	Glufosinate (unless otherwise stated the following data relate to the variant glufosinate-ammonium)
Chemical name (IUPAC)	ammonium(DL)-homoalanin-4-yl(methyl)phosphinate
Chemical name (CA)	2-amino-4-(hydroxymethylphosphinyl)butanoic acid, monoammonium salt
CIPAC No	437.007
CAS No	77182-82-2
EEC No	278-636-6
FAO SPECIFICATION	None
Minimum purity	950
Molecular formula	$C_5H_{12}NO_4P.H_3N$
Molecular mass	198.19
Structural formula	

APPENDIX II

List of uses supported by available data

GLUFOSINATE

Crop and/or situation (a)	Member State or Country	Product name	F G or I (b)	Pests or Group of pests controlled (c)	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks: (m)
					Type (d-f)	Conc. of as (i)	method kind (f-h)	growth stage & season (j)	number min max (k)	interval between applications (min)	kg as/hl min max	water l/ha min max	kg as/ha min max		
Pome fruits (apple)	EU	Basta SL18	F	weeds	SL	200 g/L	spray	44 and 14 days before harvest	2	30 days		200-600	1.5* + 1.0 or 1.0* + 1.0	14	

- Remarks:**
- (a) For crops, the EU and Codex classifications (both) should be used; where relevant, the use situation should be described (*e.g.*
 - (b) fumigation of a structure)
 - (c) Outdoor or field use (F), glasshouse application (G) or indoor
 - (d) application (I)
 - (e) *e.g.* biting and suckling insects, soil born insects, foliar fungi,
 - (f) weeds
 - (g) *e.g.* wettable powder (WP), emulsifiable concentrate (EC),
 - (h) granule (GR)
- GCPF Codes - GIFAP Technical Monograph No 2, 1989
All abbreviations used must be explained
Method, *e.g.* high volume spraying, low volume spraying, spreading, dusting, drench
Kind, *e.g.* overall, broadcast, aerial spraying, row, individual plant, between the plants - type of equipment used must be indicated
- (i) g/kg or g/l
 - (j) Growth stage at last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application
 - (k) application
The minimum and maximum number of application possible under practical conditions of use must be provided
 - (l) PHI - minimum pre-harvest interval
 - (m) PHI - minimum pre-harvest interval
Remarks may include: Extent of use/economic importance/restrictions