



## **Draft Criteria for Evaluation of Plant Protection Products, Fertilizers and Soil Conditioners Used in Organic Agriculture**



**Proceedings of a workshop  
held September 23-24, 2004 in Rome, Italy**

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## Foreword

This volume contains documents which were prepared in the course of the workshop “Draft Criteria for Evaluation of Plant Protection Products, Fertilizers and Soil Conditioners Used in Organic Agriculture”, held in Rome on September 23-24, 2004. This workshop was part of the European Union (EU) Concerted Action project ‘ORGANIC INPUTS EVALUATION’ (QLK5-CT-2002-02565). For more information on this project see the last page of this volume or visit the project website [www.organicinputs.org](http://www.organicinputs.org).

Prior to the workshop, a working group prepared two criteria matrices (hereafter called ‘matrix A’ and ‘matrix B’, and the participants tried out both matrices and reported their experience in a questionnaire. Because the emphasis is on testing the matrices, these results are presented here in anonymous form (‘eval 1’, ‘eval 2’ etc.). During the workshop, a revised matrix was developed (hereafter called ‘matrix C’). Matrix C will serve as a basis for the future work in this project, and will be further developed by the working groups. For the latest information, please visit the project website [www.organicinputs.org](http://www.organicinputs.org), or consult the project co-ordinator (via the project website).

This volume aims at illustrating the state-of-the-art of the project for the workshop mentioned above. At present, all of the matrices are work in progress, and represent notes on further directions of the work, rather than final statements. It goes without saying that they need scientific improvements as well as editorial corrections. However, this will be part of the future work in the project, and was therefore not attempted when editing this volume.

# Matrix A

**Note:** the original matrix A is in Microsoft Excel format and in the cells “average”, the average of the scores is calculated automatically.

<b>CRITERIA MATRIX FOR INPUTS (F&amp;SC AND PPP) EVALUATION - 30.08.2004</b>					
<b>To be filled in by each expert member of the evaluation panel</b>					
<b>Instruction: fill in cells; Score: marks from 1 to 5, 1=very negative ... 5=very good; explanations in italics</b>					
<b>Identification box</b>					
Common name of the input:					
Scientific name of the input:					
Dossier code:					
		Score	Evaluation ( <i>in words</i> )	Requested additional data/ analysis	Suggested restrictions
<b>1 Respect of organic agriculture (OA) principles</b>					
1	Is the raw material/active ingredients consistent with the principles of OA as formulated in IFOAM Basic Standards or Codex Alimentarius guidelines? Which principles may be affected?				
2	Is the input manufacturing (considering co-formulants/inerts as well and other products used too even if not resulting in final product) consistent with the principles of OA? Which principles may be affected?				
3	Is the intended use consistent with the principles of OA? Which principles may be negatively affected?				
4	Does the use of the input significantly influence (support or reduce) the systems approach of OA? Which elements of the systems approach may be influenced and how?				
Chapter 1 average					
Chapter 1 threshold		4			
<b>2 Necessity and alternatives</b>					
1	Needs and effects on yield quantity and yield security compared with alternatives				
2	Needs and effects on yield quality and marketability compared with alternatives				
3	Is it preferable/comparable in terms of farmers cost to already allowed inputs?				
4	How widely is it needed (a specific crop, a specific area, a specific pedologic condition... and how common is such a situation)?				
Chapter 2 average					
Chapter 2 threshold		3.5			
<b>3 Source/nature and manufacturing process</b>					
1	Is the nature of ingredients acceptable?				
2	Is it locally produced or imported and transported? In case of relevance define an area of use or a maximum transportation distance in the restrictions				
3	What is the degree of re-newability of all ingredients (score depending on the speed of renewability)? (Degradation pattern)				
4	To which extent is the manufacturing process preserving natural resources?				

5	The manufacturing process undergone by raw materials is acceptable? <i>Life-cycle assessment of all final product components up to selling form (including packaging)</i>			
6	The manufacturing process is energy, water.. resources consuming?			
7	Are process by-products (even if not present in final product) acceptable concerning their environmental fate? Are they recycled? <i>(Life-cycle assessment)</i>			
8	Is the extraction or manufacturing process potentially detrimental to the landscape ?			
Chapter 3 average				
Chapter 3 threshold		3		
<b>4</b>	<b>Environment</b>			
1	Does the manufacturing process risk to pollute water?			
2	Does the manufacturing process risk to pollute soil?			
3	Does the manufacturing process risk to pollute air?			
4	Is the input potentially containing dangerous xenobiotics (including veterinary or medical residues)? - <i>Analysis of suspected xenobiotics</i>			
5	Is the input potentially containing heavy metals? - <i>Analysis of suspected heavy metals</i>			
6	Is the input (intended as final product, co-hadjuvants included) degraded, in normal field conditions, to mineral forms within acceptable time?			
7	Is it or its metabolites potentially toxic to non-target micro-organisms? <i>(List of degradates and associated data; data about bioaccumulation)</i>			
8	Is it or its metabolites potentially toxic to non-target insects and mites? <i>(Tox data from registration dossier)</i>			
9	Is it or its metabolites potentially toxic to non-target mammals and other animal? <i>(Tox data from registration dossier)</i>			
10	Is it or its metabolites potentially polluting water? <i>(Tox data from registration dossier)</i>			
11	Is it or its metabolites potentially polluting the air? <i>(Tox data from registration dossier)</i>			
12	Is it or its metabolites potentially detrimental to native botanical species?			
13	Is it potentially detrimental to ecological balance of all species?			
14	Is it suspected to induce resistance in target-pest/disease populations?			
15	Is it potentially phytotoxic?			
16	Is its use potentially detrimental to soil conservation? (degradation, erosion, lost of organic matter....)			
Chapter 4 average				
Chapter 4 threshold		4		

<b>5 Human health and quality of the products</b>				
1	Is the manufacturing potentially dangerous to workers?			
2	Is the input risky for health of farm workers (during application)? ( <i>Epidemiological studies</i> )			
3	Is there any risk of residues on the crop/goods where the input has been used?			
4	Is the input or its residues risky to consumers (when crop is eaten)? - <i>Analysis of residues</i>			
5	How does the input affects products nutritional quality?			
6	How does the input affect products organoleptic quality (taste, flavour, crunchyness...) and processing properties?			
7	How does the input affect product security (for human/animal consumption)?			
8	How does the input affect products shelf-life quality?			
9	Is it or its metabolites suspected or proven to be mutagenic or carcinogenic? ( <i>Bibliographic research on health impact</i> )			
10	How does the input affects processing quality and storage potential?			
Chapter 5 average				
Chapter 5 threshold		3.5		
<b>6 Socio-economic aspects</b>				
1	How is the input or its ingredients perceived by consumers and public opinion?			
2	How would it affect the economics of farmers?			
3	How would it affect the economics of local community?			
4	How would it affect the local communities development?			
5	What is the effect on animal welfare?			
Chapter 6 average				
Chapter 6 threshold		3		
<b>Criteria average sum</b>				
<b>Global threshold</b>		<b>24</b>		

# Matrix B

## Introduction

The following input criteria matrix for the evaluation of agricultural inputs has been developed within the EU funded Project QLK5-CT-2002-02565: ORGANIC INPUTS EVALUATION and is a test version. Its intended use might be as follows (this has to be discussed at the next workshop):

1. The applicant fills in the matrix, leaving the 'summary & conclusions' line blank.
2. Organic farming experts and/or interested MS verify and complete the answers, and fill in the 'summary & conclusions' line.
3. An institution to be determined yet (the SCOF? A working group of interested SCOF members? The Commission? or ...?) prepares a **consolidated report** for the detailed questions & summary; where no consensus can be reached, the scope of varying interpretation is indicated in the consolidated report, together with the range of scores.
4. In the decision-making process, politicians will normally use the consolidated summary report. For full transparency, however, the consolidated full matrix is supplied together with the summary report.

## General Instructions

- *The relevant facts about the substance should be summarized in the column "description". Note: if **permitted alternatives** are available, the properties of the substance have to be described also in **relation to the alternatives** throughout this form!*
- *The interpretation of these facts for organic production should be given in the column "score" as follows:*
  - ++      *very positive*
  - +        *positive*
  - ±        *both positive and negative / neither positive nor negative*
  - 00      *not to evaluate*
  - *negative*
  - *very negative (note: substances with a score - - are normally rejected)*
- *In the last line of each table, the facts should be summarized and conclusions drawn.*
- *There are no instructions concerning the way to make overall score for each main criteria, because this involves an individual priority setting with regard to the different subcriteria. However a justification should be given, in which way the summarised score is made.*
- *Similarly, there is no fixed rule ("formula") for the final decision on the substance, because this is a political decision beyond science.*

## 1 Description / fact sheet about the substance and its use

### 1.0 Author information

Name & Institution of author	
Date	
Status of document ( <i>application, review or consolidated report</i> )	

### 1.1 Compound identification

Common name(s) of substance	
Other name(s)	
Chemical / biological name/identity	
Special codes (CAS number, etc.)	

### 1.2 Characterization

Chemical composition	
Formula weight	
Source of the substance	
Further description (e.g. manufacturing process, extraction method, use of inerts/co-formulants, etc.)	

### 1.3 Application and uses

Main application (as fertilizer or soil conditioner, crop protectant or growth regulator, plant strengthener, etc.)	
Describe the problem to be solved with the substance. How many farmers are affected, what is the economic impact, etc.?	
Intended use (crop, timing & dosage of application, restrictions on use etc.)	
Is there a risk of phytotoxic side-effects on crops?	
Expected formulation (approximatively)	
Intended effect on crops / target species	
Are permitted alternatives available? If yes: which?	
Historic use of the substance	

### 1.4 General and organic regulatory status

Substance generally authorized for the intended use in EU member states or other countries?	
Substance generally listed for the intended use in Codex Alimentarius standards or guidelines?	
What is the organic status in other regulations (e.g. USDA, etc.)	
What is the organic status in private organic standards (e.g. IFOAM Basic Standards, other relevant standards)	

## 2 Principles of organic agriculture

Criteria	Description	Score
<i>Note: explain which principles of organic agriculture are affected in which way</i>		
2.1 Is the the raw material/active ingredient itself consistent with the principles of organic agriculture (e.g. as formulated in IFOAM		

Basic Standards or Codex Alimentarius Guidelines)?		
2.2 Is the production or manufacturing of the raw material/active ingredient (inclusive use of inerts) consistent with the principles of organic agriculture		
2.3 Is the intended use consistent with the principles of organic agriculture?		
2.4 Will the input negatively affect or positively support the system approach of organic agriculture (e.g. change in agricultural practices (such as reduction of crop rotation)?		
<b>Summary &amp; conclusions</b>		

### 3 Necessity and alternatives

Criteria	Description	Score
<i>Note: Explain why the substance is necessary and what alternatives (methods, practices or inputs) exist. The evaluation should also take into account whether the crop is adapted to the local conditions</i>		
3.1 Need and effect on yield quantity and yield security compared with alternatives		
3.2 Need and effect on yield quality or marketability compared with alternatives		
3.3 Economic effects (costs, benefits, application, labour, availability, storage etc.) compared with alternatives		
3.4 Other effects		
<b>Summary &amp; conclusions</b>		

### 4 Origin/source and manufacturing process

Criteria	Description	Score
<i>Note: Document how the substance is made</i>		
4.1 Does the substance occur in nature? Where? <i>(Note: substances which do not occur in nature are not permitted)</i>		
4.2 Describe materials of origin. Are they mineral, plant, animal, microbial, other? Where do they originate from? <i>(Note: substances of chemical origin are normally not permitted)</i>		
4.3 For animal products: do they not originate from factory farming?		
4.4 Are the materials of origin renewable?		
4.5 Describe the manufacturing processes. Are they mechanical, physical, thermic, chemical etc.? <i>(Note: substances which have undergone chemical processes are normally not permitted)</i>		
4.6 Does the manufacturing process preserve natural resources (no depletion)? Does the process consume excessive		

amounts of energy, water or other resources, or pollute the environment?		
4.7 Is the product or any of its ingredients a GMO or derived from a GMO? <i>(Note: GMO and substances derived from a GMO are not permitted)</i>		
4.8 If the substance is synthetic and nature-identical is the natural form not available in sufficient quantities and qualities? <i>(Note: nature-identical substances are only allowed for exceptional cases such as pheromones)</i>		
<b>Summary &amp; conclusions</b>		

## 5 Environment

Criteria	Description	Score
<i>Note: 5.3 – 5.7 have to be assessed for the entire lifecycle of the substance from production to use and degradation, including also the manufacturing process and by-products of manufacture.</i>		
5.1 Does the substance contain potentially dangerous xenobiotics or microorganisms or heavy metals?		
5.2 Environmental fate of the substance (degradation, metabolites, accumulation in the food chain or environment etc.)		
5.3 Effects on animals (mention particularly farm animals, bees, beneficial insects, wildlife and endangered species).		
5.4 Effects on plants (mention particularly crops and endangered species).		
5.5 Effects on soil (including soil fertility & erosion) & microorganisms		
5.6 Effects on the ecosystem, e.g. water, air, landscape etc		
5.7 Effects on non-living/abiotic ecosystem (water, air, landscape etc)		
<b>Summary &amp; conclusions</b>		

## 6 Human health and product quality

Criteria	Description	Score
<i>Note: 6.1 – 6.4 have to be assessed for the entire lifecycle of the substance from production to use and degradation. Document all impacts on human health and product quality</i>		
6.1 Health hazards for the workers from production, application and post application.		
6.2 Residues of the substance in the harvest, and their effects on consumer health (e.g. acute toxicity, allergic reactions, carcinogenicity etc.)		

6.4 Effect on overall product quality (nutritional value, flavour, taste, eating properties, appearance, cooking, processing and storage properties, hygiene, food safety etc.)		
<b>Summary &amp; conclusions</b>		

### 7 Socio-economic implications / public perception

<b>Criteria</b>	<b>Description</b>	<b>Score</b>
<i>Note: 7.1 – 7.6 have to be assessed for the entire lifecycle of the substance from production to use and degradation. Provide existing studies regarding public and consumer perceptions regarding the substance</i>		
7.1 Public perception concerning consistency with organic farming principles		
7.2 Public perception concerning origin		
7.3 Public perception concerning environmental effects		
7.4 Public perception concerning human health & product quality		
7.5 conditions of living / rural development		
7.5 Social justice and fair trade issues		
7.6 Effects on animal welfare		
7.7 Other effects such as cultural or religious implications		
<b>Summary &amp; conclusions</b>		

## Consolidated answers to questionnaire

### General comments

<p>Are the matrices too long? Or too short?</p>	<p><b>eval 1, eval 2, eval 6, eval 9, eval 10:</b> ok  <b>eval 5:</b> Too long (matrix A) if evaluation is requested in words for each item. Should be limited to 10 questions maximum per item.  <b>eval 3:</b> OK except environment from matrix A  <b>eval 8:</b> matrix A is too long.  <b>eval 11:</b> acceptable</p>
<p>Are they clearly understandable? Or confusing? What could be improved?</p>	<p><b>eval 1:</b> generally ok  <b>eval 2:</b> Mostly clear, sometimes unclear  <b>eval 3:</b> They are OK – but questions are too open ended – need clear guidance notes to clarify the parameters  <b>eval 5:</b> Yes, the matrices are clearly understandable. Their use however a bit confusing who does what (applicant/ expert).  <b>eval 6:</b> Clearly understandable. In the matrix B avoid “etceteras”, it should be clearly listed, which points have to be answered, the “etc.” might have the unwanted effect that not all of the written points before the “etc.” are dealt with!  <b>eval 9:</b> No problem  <b>eval 10:</b> When referring to “principles of organic farming”, this is very hard to answer, as there are many different ways to look at this.  <b>eval 11:</b> Some typing errors, ok, I personally prefer matrix A.</p>
<p>Do the matrices cover all aspects which are necessary for organic evaluation of a compound? If not: what is missing? What is superfluous?</p>	<p><b>eval 1:</b> Generally ok  <b>eval 2, eval 5:</b> yes  <b>eval 3:</b> OK except that there need to be restrictions as a question on matrix A (rather than a column). Also matrix A needs to have more on public perception as per matrix B.  <b>eval 6:</b> One aspect is missing, which should be addressed separately in context with the “necessity” or the “socio-economic” section: how urgently do the organic farmers themselves want/need a certain input to be taken up in the annex II?  <b>eval 9:</b> Concerning matrix B: 1.2.4 = 4.5 and 1.2.3 = 4.2, from my viewpoint one should be taken out (preferably 1.2.#)  <b>eval 10:</b> I’m not sure. When new products are to be evaluated, the questions should normally be reviewed.  <b>eval 11:</b> Little attention to formulation additives</p>

### The two criteria matrices

<p>What are the <u>advantages</u> of matrix A?</p>	<p><b>eval 1:</b> Not filled in, just looked through  <b>eval 2:</b> ??  <b>eval 3:</b> Scores automatically calculated. Spreadsheet better  <b>eval 5:</b> That all substances are evaluated in a comparable manner and “politics” are as much as possible left out of the evaluation process. Adding scores clearly identifies problem areas.  <b>eval 6:</b> The criteria formulated as questions, which forces the reviser more to give clear answers. The scoring system, at</p>
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	<p>least as an attempt, to give a total evaluation score as a basis for acceptance or rejection of an input, although it might be improved (for instance in sections with only few data available, the total average of the few answerable questions are rather meaningless). The boxes for requested data and suggested restrictions. To be forced to give answers as clear as possible, if this is not possible, you have identified a knowledge/data gap!</p> <p><b>eval 8:</b> Excel format – easier to go through questionnaire  <b>eval 9:</b> Option for giving examples for restrictions, The marks allow a quicker evaluation process at the end.  <b>eval 10:</b> Easier with 1-5 scale. Fast overview of results in summary (average).  <b>eval 11:</b> It is more clear and attractive.</p>
<p>What are the <u>disadvantages</u> of matri A? How could they be improved?</p>	<p><b>eval 1:</b> Not filled in, just looked through  <b>eval 2:</b> Unclear, how to deal with geographic variation; Answers clear, but unclear what marks to give; Some questions are too detailed; For each question, there should be <u>detailed guidance</u> on how to set marks. No effect=5? Or =3 ?  <b>eval 3:</b> No 1<sup>st</sup> section on description, application/use and regulatory status (conventional and organic).  <b>eval 5:</b> It is too much work for the evaluator to do evaluations with text and scores. Let the evaluation part be provided by the applicants so the evaluation is shortened. The expert can add scores and concentrate on “hot discussion issues” or lack of information.  <b>eval 6:</b> The scoring system (see also above): the weighting of the score thresholds for the sections should be explained and fine-tuned! The important GMO question is not addressed directly. It is tedious to be asked again and again having no data to rely upon (especially in the sections “product quality” and “socio-economics”)!  <b>eval 8:</b> Too long. Scores are subjective. Cannot establish thresholds.  <b>eval 9:</b> -  <b>eval 10:</b> The excel file is difficult to send and also to print out.  <b>eval 11:</b> Averaging in field D21 did not work, possibly my problem, to the score system “does not apply” should be added.</p>
<p>What are the <u>advantages</u> of matrix B?</p>	<p><b>eval 1:</b> Ok to fill in. The questions require input from people with different backgrounds.  <b>eval 2:</b> Open questions give flexibility to deal with geographic variation.  <b>eval 3:</b> Simpler to fill in – slightly shorter. Good first sheet. Better questions on public perception.  <b>eval 5:</b> Short system is nice. Information provided by applicants already “according to the system” will end up with long lists of descriptions. More difficult to obtain clear overview. Scores do not indicate what is “good or bad”, which leaves too much room for discussion, politics etc. later in the consolidated report.  <b>eval 6:</b> Generally, the formulation of the criteria appeared somehow clearer and more consistent to me. Very useful I</p>

	<p>find the summary &amp; conclusions at the end of each section.  <b>eval 8:</b> Shorter, better structured questions.  <b>eval 9:</b> -  <b>eval 10:</b> Easier to read and to print  <b>eval 11:</b> ?</p>
<p>What are the <u>disadvantages</u> of matrix B? How could they be improved?</p>	<p><b>eval 1, eval 2:</b> -  <b>eval 3:</b> No scoring system  <b>eval 5:</b> Unclear “what really the problem is with a substance”  Makes a clear evaluation more complex.  <b>eval 6:</b> The scoring system: it remains to the expert by what criteria he gives a “+” or “-“ at the end of each section, this should be made more congruently for better comparability of different reviews.  <b>eval 9:</b> The missing column for RESTRICTIONS, the scoring system.  <b>eval 8:</b> -  <b>eval 10:</b> Use matrix A scale (1-5) and counting averages  <b>eval 11:</b> The score system is more difficult and less transparent</p>
<p>How should we continue? – with matrix A, B, or a combination (<i>in this case, specify how it should be combined</i>)?</p>	<p><b>eval 1:</b> A lot of overlap exists, good possibilities to merge.  <b>eval 2:</b> matrix B system for fact-finding; guidance for decision-making based on ideas of matrix A system.  <b>eval 3:</b> Combine – Spreadsheet, score from matrix A  First section from matrix B. Take out some matrix A environment questions. Use the public perception questions. Also need to produce guidance notes – this is also needed to explain the threshold scores.  <b>eval 5:</b> Combination. Let the applicants provide the information. Use largely the questions from matrix B, but add the “score” system from matrix A and be clear with thresholds about what is acceptable and what is not.  <b>eval 6:</b> A combination of the two matrices which actually are very similar already concerning the criteria as well as their classification in sections; from matrix A the scoring system might be overtaken, the boxes for data request and restrictions, from matrix B the “between-summaries”; a combined version should contain the complete list of criteria from both matrices.  <b>eval 9:</b> matrix A plus point 1 of matrix B.  <b>eval 10:</b> Use the best from both matrixes. matrix A with moderations from the matrix B document would probably be best.  <b>eval 11:</b> matrix A with possibly some modifications</p>

### Comments versus marks/scores

<p>Do you prefer text comments or marks/scores? Why?</p>	<p><b>eval 1:</b> I prefer text, scores are more unprecise.  <b>eval 2:</b> Text for fact-finding; Scores for decision-making.  <b>eval 3:</b> Scores – much easier to see total and impact.  <b>eval 5:</b> Marks/scores because it forces each reviewer to apply a comparable approach. Text comments can be limited to issues only that need further discussion.  <b>eval 6:</b> Both is necessary: the text comments give the background and the reason for the scoring, without comments the scoring/marking is meaningless!</p>
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	<p><b>eval 8:</b> Comments + marks  <b>eval 9:</b> Marks, better evaluation  <b>eval 10:</b> Both text and scores, otherwise too difficult to understand  <b>eval 11:</b> Both will be necessary</p>
<p>In the case of marks: should the performance of a compound in one chapter (e.g. “environment”) be</p> <p>(i) The average of all subcriteria?  (ii) The minimum mark from all subcriteria?  (iii) A separate assessment made (and publicly justified) by the experts?  <i>Note: (i) is the case in the matrix A system; (iii) is the case in the matrix B system.</i></p>	<p><b>eval 1:</b> Prefer iii. As if one criteria is unacceptable (e.g. environmental impact) then this should overrule other criteria.  <b>eval 2:</b> iii  <b>eval 3:</b> Average of all subcriteria as per matrix A (i)  <b>eval 5:</b> To me, a separated assessment is included also in the matrix A system, if a score is low. To work only with the average is too limited. It should also include a phrase like “the lowest score should not be below 3”, for instance.  <b>eval 6:</b> The case (ii) makes no sense, I think, because then the criteria in the single sections would have to be weighted completely comparable which is impossible. So, one “-“ from a single, possibly less important aspect might skip a product out, although the other criteria are positive. I would combine (i) (fine-tuning necessary as mentioned above) averaging each section, and (iii), that the score has to be summarized and justified by the expert, as in existing matrix B.  <b>eval 8:</b> A separate assessment (it cannot be put in terms of average)!  <b>eval 9:</b> ii  <b>eval 10:</b> Generally (i) would be good. Also separate assessments could sometimes be advantageous; however see below.  <b>eval 11:</b> It depends on the item; it might possibly be a criterion to refuse application in OA if a PPP is toxic to bees; thus the average mark for example for “environment” may be acceptable this one point may be a reason for rejection.</p>
<p>Should there be a mark which leads to inevitable rejection of the compound?</p>	<p><b>eval 1:</b> Yes. If one criteria is unacceptable (e.g. environmental impact), then is should overrule other criteria.  <b>eval 2, eval 5, eval 9, eval 10:</b> yes  <b>eval 6:</b> Yes, because this might reflect too many negative aspects of an input from the viewpoint of organic agriculture.  <b>eval 8:</b> Not sure...  <b>eval 3:</b> Yes – there could be some trigger values (e.g. obviously GM; factory farming; chemical synthesis)  <b>eval 11:</b> possibly yes</p>
<p>In both systems, the performance of a compound in one chapter (e.g. “environment”) is summarized. In matrix A, this is done “automatically” by calculating the average mark; in matrix B, this is a separate assessment made (and publicly justified) by the experts. What do you prefer?</p>	<p><b>eval 1, eval 2, eval 9:</b> separate  <b>eval 3:</b> Scoring preferred  <b>eval 5:</b> Also in the matrix A system a consolidated report should be made. But at least the scores of separate experts are comparable in the matrix A system.  <b>eval 6:</b> a combination of both  <b>eval 8:</b> The latter. It’s NOT mathematics!  <b>eval 10:</b> matrix A in general. However, this is not always enough, so sometimes the extra assessment would be needed  <b>eval 11:</b> The mark system of matrix A is more transparent, however, attention should be paid to the notes in cases as well.</p>

## Comments on individual questions

*Which questions should be left out, rephrased, added? Etc.*

<p><u>matrix A</u> Area 1, OA principles</p>	<p><b>eval 3:</b> NO first sheet of description, application and uses and regulatory status  <b>eval 5:</b> Organic principles are so vaguely formulated that it is difficult to use them as real criteria  <b>eval 6:</b> 1.1 : add EC-regulation 2092/91 to IFOAM Basic Standards and Codex guidelines!  <b>eval 8:</b> Doesn't seem a good idea to list the principles for each question  <b>eval 10:</b> More description (with principles)</p>
<p>Area 2, Necessity</p>	<p><b>eval 2:</b> 2.4: results in a good / bad mark?  <b>eval 5:</b> Take 2.3. from matrix B. 2.4 Important question  <b>eval 6:</b> Add a question about the farmers' need of the input  <b>eval 8:</b> 4.2: Difficult to assess</p>
<p>Area 3, Source</p>	<p><b>eval 2:</b> 3.1: this is not a question; this should be the outcome of area 3; 3.2: Today, transportation distance is not a criterion in EC 2092/91. Thus, it makes no sense to include it here "through the back door". Varies greatly for different MS; 3.5: selling form is for commercial products, not for active ingredients. Varies too quickly; 3.6: all processes consume some resources; 3.7: selling form is for commercial products, not for active ingredients. Varies too quickly! Problems of confidentiality!  <b>eval 5:</b> 3.3: should be rephrased, is unclear. Factory farming question should be added. GMO question should be added  3.6: needs to be rephrased into <u>excessive</u> amounts of energy  Native english speaker should go through formulations  <b>eval 6:</b> Add a question directly asking for GMO's (e.g. matrix B 4.7)  <b>eval 8:</b> 4.2: difficult to assess; 4.8: belongs to environment  <b>eval 9:</b> 3.2: I doubt that transportation distance limits are supportive for the use of specific means (excluding the purchase of farm yard manure or composts); 3.7: How realistic is 3.7, if intermediate compounds are not mentioned by the applying company?</p>
<p>Area 4, Environment</p>	<p><b>eval 2:</b> 4.1-4.3: depends on national laws and individual factories; 4.6: adjuvants: only for commercial products  <b>eval 3:</b> Too many  <b>eval 5:</b> Too many questions which are unnecessary, considering the option of giving an evaluation in words; combine 4.1. until 4.3. and 4.7 until 4.9.  <b>eval 6:</b> 4.1 to 4.3 could be combined. For the case that the input is an organism (microbe, microbial metabolite, beneficial insect for release etc.) add a question asking if this organism is a native or an alien species?  <b>eval 8:</b> 4.1 to 4.3 belong to source. Too exhaustive  <b>eval 9:</b> 4.12: Instead of NATIVE BOTANICAL take "non-target"</p>
<p>Area 5, Human health</p>	<p><b>eval 2:</b> 5.1: should only be evaluated <u>with</u> safety precautions  5.8/5.10: shelf life appears twice  <b>eval 5:</b> ok. Native english speakers should go through formu-</p>

	<p>lations</p> <p><b>eval 6:</b> Concerning product quality, I found the greatest gap in information, at least for the spinosad case!</p> <p><b>eval 8:</b> Too exhaustive</p> <p><b>eval 9:</b> 5.8: Overlapping with 5.10 (One should be taken out)</p>
Area 6, Socio-economics	<p><b>eval 2:</b> 6.2: will always be positive; otherwise, the input is not used</p> <p><b>eval 3:</b> Not enough on public perception</p> <p><b>eval 5:</b> use questions from matrix B</p> <p><b>eval 6:</b> Like above, great lack of hard data!</p> <p><b>eval 8:</b> 6.2 to 6.4: difficult to assess</p>
<u>Matrix B</u> Area 1, Description	<p><b>eval 2:</b> Important general information</p> <p><b>eval 3:</b> Good and useful</p> <p><b>eval 5:</b> ok. 1.3.4 and 1.3.7 might overlap with questions later on</p> <p><b>eval 6:</b> 1.3: not fully clear to me, what is meant by “expected formulation”</p> <p><b>eval 8:</b> Necessary</p>
Area 2, Principles of OA	<p><b>eval 5:</b> Organic principles are so vaguely formulated that it is difficult to use them as real criteria</p> <p><b>eval 6:</b> 2.1: add EC reg. 2092/91</p>
Area 3, Necessity	<p><b>eval 2:</b> Is it necessary to produce everything everywhere? Political guidance needed</p> <p><b>eval 5:</b> 2.4 from matrix A is an important consideration that is missing</p>
Area 4, Origin	<p><b>eval 2:</b> Clear definitions missing</p> <p><b>eval 5:</b> 4.6 belongs more to “environment”</p>
Area 5, Environment	<p><b>eval 6:</b> 4.2: add a criterium concerning the “native/alien” origin of species</p> <p><b>eval 8:</b> 5.6: doesn’t seem necessary, since it repeats previous questions (biotic factors) plus 5.7 (abiotic factors)</p>
Area 6, Human health	<p><b>eval 5:</b> I would specify the question more. For instance health issues in manufacturing and application separately. Also food security asks for more specific questioning (see matrix A). 6.3. is ok.</p>
Area 7, Socio-economics	<p><b>eval 2:</b> Varies greatly from country to country, person to person!</p> <p><b>eval 5:</b> well done</p> <p><b>eval 6:</b> 7.7 cultural &amp; religious implications: here an example would be helpful what is thought of by this criterium!</p> <p><b>eval 9:</b> How profound are the answers for these points?</p>

# Matrix C

**Note:** the original matrix C is in Microsoft Excel format.

<b>CRITERIA MATRIX FOR INPUTS (F&amp;SC AND PPP) EVALUATION – improved, 23.9.2004</b>					
<i>To be filled in by each expert member of the evaluation panel</i>					
<b>Red=possible exclusion criteria</b>					
<b>Instructions for evaluators</b>					
<ol style="list-style-type: none"> <li>The field «Score» must always be filled in, except where not applicable or where information is missing. Meaning of scores: -2=very negative; -1=negative; 0=neutral; 1=positive; 2=very positive; na=not applicable; im=information missing</li> <li>Whether the field «Evaluation (in words)» must always be filled in, or only where this provides additional information, will be decided later by the working group in charge.</li> <li>The fields «Requested additional data/ analysis» and «Suggested restrictions» must only be filled in where applicable.</li> </ol>					
<b>Identification box</b>					
Common name of the input:					
Scientific name of the input:					
Dossier code:					
		Score	Evaluation (in words)	Requested additional data/ analysis	Suggested restrictions
<b>1 Respect of organic agriculture (OA) principles</b>					
1.1	Is the intended use consistent with the principles of OA *? ( <i>Take note of 'Organic Revision' project when finished</i> )				
1.2	To what extent does the input influence (support or reduce) the systems approach of OA? Which elements of the systems approach may be influenced and how?  <i>* note: the principles of OA include: promotion of agroecosystem health, biodiversity, soil biological activity and long-term fertility, biological cycles, recycling of plant and animal wastes to return nutrients to the land, use of farm-derived in preference to off-farm inputs, use of renewable resources, healthy use of soil, water and air, minimizing all forms of pollution (adapted from Codex Alimentarius)</i>				
<b>2 Necessity and alternatives</b>					
2.1	To what extent is it a need for OA (a specific crop, area, pedologic condition... and how common is such a situation)?				
2.2	What is the need for the substance in terms of yield quantity, yield security, yield quality and marketability, and profitability (compared with alternatives)				
2.3	Can the substance replace the use of other substances with inferior properties?				
2.4	Are there alternative (products or methods) with comparable effects?				
<b>3 Source/nature and manufacturing process</b>					
3.1	Describe materials of origin. Are they mineral, plant, animal, microbial, or <b>synthetic</b> ? Where do they originate from? If the substance is synthetic and nature-identical: is the natural form not available in sufficient quantities and qualities?				
3.2	For animal products: <b>do they originate from factory farming?</b> ( <i>definition of factory farming lacking at present</i> )				

3.3	Are the material's ingredients renewable, and how fast?				
3.4	Is the product or any of its ingredients a GMO or derived from a GMO? (to be elaborated further)				
3.5	Describe the manufacturing processes. Are they mechanical, physical, thermic, chemical etc.?				
3.6	Does the manufacturing process preserve natural resources (no depletion)? Does the process consume excessive amounts of energy, water or other resources, or pollute the environment?				
<b>4</b>	<b>Environment</b>				
4.1	Does the manufacturing process risk to pollute the environment?				
4.2	Does the substance or its metabolites risk to pollute the environment?				
4.3	Does the substance contain potentially dangerous xenobiotics, microorganisms or heavy metals?				
4.4	Environmental fate of the substance (degradation, metabolites, accumulation in the food chain or environment etc.). <i>If known, indicate speed of degradation.</i>				
4.5	Effects on animals ( <i>mention particularly farm animals, bees, beneficial insects, wildlife and endangered species</i> ).				
4.6	Effects on plants ( <i>mention particularly crops and native botanicals</i> ).				
4.7	Effects on soil (including soil fertility & erosion) & microorganisms				
4.8	Effects on the ecosystem, e.g. water, air, landscape etc				
4.9	Effects on non-living/abiotic ecosystem (water, air, landscape etc)				
<b>5</b>	<b>Human health and quality of the products</b>				
5.1	Is the manufacturing process harmful to human health?				
5.2	Is the use of the substance harmful to human health? (report personal protective equipment requirements)				
5.3	Are there reported adverse health effects of the substance or its metabolites?				
5.4	is the substance a food or feed grade product?				
5.5	Is there a toxicologically relevant risk of residues of the substance on the crop/goods after use?				
5.6	Does the substance affect product safety for human consumption?				
<b>6</b>	<b>Quality of the products</b>				
6.1	How does the input affect product organoleptic quality (taste, flavour, texture...) and processing properties?				
6.2	How does the input affect products storage properties and shelf-life?				
<b>7</b>	<b>Animal health and welfare</b>				
7.1	What is the effect on animal health and welfare?				

<b>8 Socio-economic aspects</b>				
8.1	Public perception concerning consistency with organic agriculture (OA) principles			
8.2	Public perception concerning origin			
8.3	Public perception concerning environmental effects			
8.4	Public perception concerning human health & safety			
8.5	Public perception concerning product quality			
8.6	Effect on conditions of living / rural development			
8.7	Social justice and fair trade issues			
8.8	Other effects, such as cultural, ethical or religious implications			

## About the 'ORGANIC INPUTS EVALUATION' project

The 'ORGANIC INPUTS EVALUATION' project is an EU Concerted Action project carried out under the Quality of Life Work Programme, 5<sup>th</sup> Framework Programme. It is funded by the Commission of the European Communities (QLK5-CT-2002-02565; full title: Harmonised and Standardised procedures for evaluation of plant protection products, fertilizers and soil conditioners for use in organic agriculture) and co-funded by the Swiss Federal Office for Education and Science (BBW 02.0113). The project lasts from January 2003 until December 2005.

The objective of this Concerted Action project is to develop recommendations for harmonized and standardized procedures for the evaluation of plant protection products, as well as for fertilizers and soil conditioners authorized for use in organic agriculture according to Council Regulation 2092/91. The project proceeds in three phases:

- Inventories of current evaluation procedures in the participating countries (separately for plant protection products and fertilizers and soil conditioners).
- Elaboration of standardized evaluation procedures.
- Recommendations for evaluation procedures and identification of research needs.

The following institutions are participating in this project:

- Danish Agricultural Research Centre for Organic Farming (DARCOF), Denmark
- Research Institute of Organic Agriculture (FiBL), Switzerland
- EcoS Consultancy, United Kingdom
- Istituto Sperimentale per le Nutrizione delle Piante, Italy
- Associazione Italiana per l'Agricoltura Biologica, Italy
- Louis Bolk Instituut, The Netherlands
- Soil Association, United Kingdom
- Ludwig Boltzmann Institut for Biological Agriculture, Austria
- Austria Bio Garantie / InfoXgen, Austria
- Associação Portuguesa de Agricultura Biologica, Portugal
- Universität Gesamthochschule Kassel, Germany
- Danish Plant Directorate, Denmark

For more information on this project, please visit the project website [www.organicinputs.org](http://www.organicinputs.org).