

Facilitating Ethical Reflection among Scientists Using the Ethical Matrix as a Tool  
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**EADGENE** European Animal Disease Genomics Network of Excellence for Animal Health and Food Safety

**Genomics for Animal Health: Outlook for the Future**  
 13- 14th October 2009, Muséum National d'Histoire Naturelle, Paris, France



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**Introduction**

- Scientists are increasingly challenged to engage in ethical reflection on their research
- However, several findings show that scientists are likely to have an outlook which is different to that of lay people.
- This seems to indicate that, in order for scientists to perform a reliable ethical reflection, it is necessary to engage them in dialogue with other stakeholders
  - The worry would be that they would not succeed in getting an accurate understanding of other stakeholders

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**Agenda**

- This picture needs to be nuanced.
- We report an attempt to engage scientists in reflecting on ethical issues on their own without the involvement of external stakeholders.
  - Four workshops held within the EADGENE Network of Excellence, aimed at ethical reflection.
  - Fifth workshop which included external stakeholders.

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**Method**

Generic Ethical Matrix (Translation of the ethical principles for the corresponding interest group)			
	WELLBEING	AUTONOMY	FAIRNESS
TREATED ANIMAL	Animal welfare	Behavioural Freedom	Intrinsic value
PRODUCERS	Satisfactory income and working conditions	Managerial freedom	Equitable IPR conditions, trading and market systems
CONSUMERS (including affected citizens)	Food safety and quality of life	Informed democratic choice	Affordability and access to food
ENVIRONMENT (Biota)	Conservation and Protection	Biodiversity	Sustainability

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**Modified Ethical Matrix**

- The Ethical matrix was originally designed for use in multiple stakeholder groups.
- However, successful use of the Ethical Matrix is primarily dependent on its users being prepared to engage conscientiously in putting themselves in the shoes of other parties.
- Hence, there appears to be nothing in principle against using the Ethical Matrix in a modified form, where only one stakeholder group participates.

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**The Four Workshops**

- Roslin Institute (November 2007),
- University of Liege (December 2007),
- Wageningen University (January 2008) and
- INRA, Paris (February, 2008).
- The participants were mostly scientists from universities and industry (representatives from the breeding industry participate in the Network).
- One or two persons with a professional ethics background also participated.
- Each workshop used a case emerging from research in the host institute to initiate the discussion. However, the discussions also comprised more general issues in animal disease genomics research.

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### Aim of the Workshops

- To allow for an exchange and analysis of viewpoints and
- To build capacity to make ethical deliberation.
- The aim was not to arrive at some consensus, but to note and clarify perspectives and focus.
- The participants were asked to answer the following four questions:
  - What are the ethical issues at stake in relation to the case - and to animal disease genomics?
  - What ethical issues would you consider most significant?
  - What are your main responsibilities with regard to these issues?
  - How should these issues be dealt with?

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### The Matrix Used in the Workshops

Interest group	Respect for		
	WELLBEING	AUTONOMY	JUSTICE
PRODUCERS/INDUSTRY			
CONSUMERS/CITIZENS			
SCIENTISTS			
ANIMALS IN RESEARCH			
PRODUCTION ANIMALS			
ENVIRONMENT			

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### The Workshop with External Stakeholders

- Roslin Institute (January 2009)
- Participants from the Network and selected external stakeholders, mainly from various NGOs concerning agriculture and animal welfare.
- The objective and the questions of this workshop were the same;
  - however this workshop did not build on a specific case (as the four other workshops did).

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### Outcome - Benefits

- The participants expected research to lead to substantial benefits, such as
  - Increased production efficiency for producers
    - (in theory leading to lower prices or more opportunities for consumers),
  - Better food safety for consumers or
  - Better welfare for production animals.

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### The Scientists Themselves

- For themselves, the scientists wanted their research to be valuable for society
- Also, the scientific ambition is to gain fundamental insights.
  - However, there was a perception among them that it becomes more difficult to rise funding for basic research.
  - The large proportion of privately funded research raised concerns about restrictions on the right to publish (e.g. negative results).
  - Patenting and private ownership of results also gave rise to concerns.

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### Outcome - Costs

- The costs were mainly seen to befall the research animals who often suffer during the experiments.
- It is an important aim to see if the suffering can be avoided or at least reduced.
  - However, if the sample size becomes too small to draw significant conclusions from the experiment, the benefits may get lost.
  - Hence, a dilemma between these two aims was identified.

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### Balancing Benefits and Costs

- The importance of the research. Is it really necessary?
  - Is efficiency in animal production in the developed countries leading to lower prices for wealthy consumers really an urgent need?
  - It would seem more urgent to address the needs of the very poor people in the world.
- The quality of the research.
  - Many knew about poorly designed experiments that did not produce the intended knowledge.
  - Raising the quality of experiments using animals was thus identified as an important issue.

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### Uncertainties

- Will the expected benefits actually materialize in the amount they are expected to?
  - The outcomes of the research enter into a dynamic world, where it is difficult to foresee how they will interact with other forces.
  - It might even be the case that the expected benefit could be turned into a harm
- Risk of unintended harm
  - Risks for producers (e.g. restriction on freedom of choice),
  - Risks for consumers (e.g. food safety risks),
  - Risks for research and production animals (e.g. unforeseen adverse effects) or
  - Risks for the environment (e.g. on biodiversity).

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### Responsibilities of Scientists

- In general, the participants considered a wide range of consequences of their work.
  - Many of these, as noted above, would be influenced by factors outside the scientists' control.
- Thus, many did not accept the claim that they are fully responsible for the use of their results.
  - On the other hand, it is often known to scientists that there is a risk of results being used for other purposes than they were intended for
- A tentative conclusion was perhaps that scientists minimally are responsible for communicating to the public their worries about how results are used.
- However, there was also great uncertainty about how to communicate with the public and society at large, e.g. about uncertainties or responsibility.

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### The Fifth Workshop - Expected Benefits

- Future production animals could become more resistant to diseases,
  - and this could improve their welfare.
- This might indirectly benefit producers in terms of increased efficiency,
  - and it might indirectly benefit consumers in terms of less zoonotic infections.
- Finally, there were the prospect of breeding for more environmental friendly animal populations.

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### The Fifth Workshop - Costs

- Beware the research animals who are challenged with the relevant diseases.
- The risk of choosing the wrong breeding goals.

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### The Fifth Workshop - Worries

- Concentration of power in the breeding industry
  - and the not yet full level of transparency about the breeding goals.
- The possibility of misuse of the results,
  - e.g. keeping more robust production animals under continuing sub-optimal conditions.
- The risk of reduced genetic diversity.
- The integrity of the animals could be impaired,
  - e.g. by breeding animals unable to live natural lives.

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### The Fifth Workshop - Responsibilities



- Responsibility was considered to befall a number of agents with influence on the final outcome throughout the chain
  - ranging from researchers through breeding companies, authorities, producers, retailers to consumers.


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### Evaluation - Content



- The scientists were capable of giving voice to the interests of other groups,
  - and they appeared to be under no observable bias.
- We observed a genuine concern about the welfare of research animals over and above just respecting the regulations.
- The scientists were able to see the limits of their own work and to place it under critical scrutiny
  - Clear understanding of the larger context, in which the research operates.
- There was a clear perception of uncertainties
- The discussions thus ended up on a high level of complexity and depth.


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### Evaluation - Evaluation Forms



- All participants responded positively to the question 'What was your overall impression of the workshop?'
- 42 out of 45 respondents reported that the modified Ethical Matrix aided the process, although there were some comments, like
  - 'It helps, but in some extent the matrix seems to be restrictive to me.'
- 38 out of 44 responded positively to the question 'What is your overall view of the EM method used here?'


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### The Fifth Workshop - Evaluation Forms



- The overall evaluation of the workshop was clearly positive, but there were a number of critical remarks.
  - Several participants indicated that the use of the Ethical Matrix both aided *and hindered* the process.
- Most were satisfied with the mix of interests of the participants of the workshop
- A few complained about the lack of more specific cases
- Some found that there had been too little time.
- Some indicated that some people were allowed to talk more than others and that the facilitators failed to correct this


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### Discussion



- We judge that the modified Ethical Matrix has worked as a tool to establish ethical reflection among the participating scientists.
- This finding calls for a more nuanced understanding of stakeholder involvement in ethical reflection.


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### Discussion (2)


- Stakeholder representation seems to be grounded primarily in heuristic reasons.
- However, it is in some cases a risk that inclusion of stakeholders will hinder ethical reflection.
  - Confrontation with other stakeholder representatives involves a risk that the scientists would have felt themselves under attack
- Being in a homogenous group of likeminded people might have made the scientists feel more confident

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### Discussion (3)

- The (admittedly limited) observation that also the workshop with external stakeholders worked well may cast this reasoning in doubt.
- However, the local workshops were not completely internal to the scientific community, because the breeding industry participated and
  - this industry represents an external perspective, while
  - sharing the scientific training etc. with the scientists
- The actual setting may thus be important




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### Conclusion

- If the findings reported here are generally valid, it seems that an alternative method for promoting ethical reflection among scientists is available:
  - Instead of involving external stakeholders, it is possible to run a reflection process among a group of scientists on their own.
  - This method has the advantage of being simple and not very costly.




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### Conclusion (2)

- However, the dialogue and interaction between scientists and the public and other stakeholders remains of crucial importance
- It doesn't help much that scientists show capacity in ethical reflection if this capacity does not mature in better communication to external stakeholders.
- Therefore, the scientists must still be challenged to meet their external environment in an informed and value based dialogue.



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