



Inserm

La science pour la santé
From science to health

**Representations of
animals in research**

**Inserm Ethics
Committee**
Animal Experiments Group

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Preamble

Animal welfare is one of the fundamental principles of the European Union. In the preamble to Directive 2010/63/EU of the European Parliament and of the Council of 22 September 2010, which concerns us directly as it relates to the protection of animals used for scientific purposes, point (2) states that "Animal welfare is a value of the Union enshrined in Article 13 of the Treaty on the Functioning of the European Union". The animals expressly mentioned in European texts are livestock, pets and animals used in research.

Directive 2010/63/EU (see link to the full text in Appendix 1) came into force in France in 2013. It replaces the 1986 directive (86/609/EEC) and aims to ensure a high level of protection for the animals concerned. Recital (10) states that :

"This Directive represents an important step towards the ultimate goal of total replacement of procedures on live animals for scientific and educational purposes, as soon as scientifically possible".

It is therefore recognised that total replacement is not yet possible today, even if it is the objective towards which medical and biomedical research, in its various components, must aim in the medium or longer term.

The adoption of Directive 2010/63/EU, by continuing to legitimise the use of animals, while providing a framework for it, prompted a European Citizens' Initiative called "Stop vivisection", which collected more than 1 million signatures in just a few months (Commission Communication of 03 June 2015) to call for its repeal, thus aiming stop all use of animals in research. Although the initiative was unsuccessful, it inevitably had media and political consequences. This has raised the awareness of the research institutes concerned by these practices, as well as certain national EPST⁽¹⁾.

It was against this backdrop that Inserm's Ethics Committee, which was relaunched in 2013, asked the Animal Experimentation Group to reflect on the ethical issues raised by these practices. Combining expertise in the fields biology, veterinary science and the humanities, the group wanted to meet Institute staff working with and in contact with animals in order integrate the ethical issues raised by these practices.

internal questions on the subject. From a methodological point of view, studying representations means paying particular attention to what those involved in medical research do with animals, and therefore to the way in which they talk about and describe their work with animals.

The attached document combines an assessment of the Group's own approach and the perceived influence of this context.

Introduction

Initially, the justification for experimentation can be assessed by evaluating the balance between the expected benefit for the human species (or various animal species in the case of veterinary research) and the cost paid by the animals used (stress, pain, suffering, death). Initially, therefore, the working group started from the premise that the scientific world, represented here by the Inserm² community, accepts the principle that it is possible to work with and experiment on animals. As a result, we extrapolated this idea to the entire scientific community, since the new directive represents a real step forward in the consideration of animals in medical research. This is the idea that was defended during meetings between the CEI³ (think tank on animal experimentation and members of the BEA⁴) and the CNRS Ethics Committee⁵ on the subject of animalist criticisms of medical research and how to respond to them. How should we position ourselves in a moral controversy about the use of animals? How can our think tank contribute? How can we 'defend' animal experimentation? Is justifying the importance of the research undertaken really enough?

Indeed, the affirmation of this principle, encountered in the meetings we have led or simply attended, has probably led to a significant bias in our approach to ethical reflection on animal experimentation. This justification for experimentation is not only consequentialist, it is also - and above all - principled: the affirmation of human health as a higher good. And so, by rebound, it also affirms the superiority of human value over that of the animal. As certain contemporary currents of thought discuss and criticise this position, either absolutely or relatively (at what point would 'human utility' or 'animal disutility' be considered - by humans - to be acceptable?), it seemed appropriate to us to reposition our initial starting point so that we could take it into account and include it in the scope of our thinking.

The following points also caught our attention. In the world of research, we need to be able to distinguish between the point of view of those who design projects and those who implement them. Is it possible to lend feelings or sensitivity to a concept? Handling an animal to carry out an intervention, whatever it may be, makes it easier to move from concept to reality, from a scientific construct to a sentient being. What impact might this have on the way people represent animals, depending on their position in a research programme within this community?

Finally, the diversity of species present in a laboratory, however limited relation to overall biodiversity, is not neutral in relation to this representation. A nematode, an insect, a fish or a terrestrial vertebrate, mouse, dog or macaque, may justify different representations and reactions.

The development of the European Citizens' Initiative, already mentioned above and repeated below, and the associated reaction of various components of civil society have therefore led us to reconsider the real starting point. What initial question should we really be asking? The emerging difficulty consists in admitting that the Initiative's request does not correspond to a scientific but a moral approach. That said, we have to admit that ethics is not a matter of "Science". We need to integrate the moral judgements made by stakeholders, including animalist critics. This critical movement is built on an ethic that is based on scientific data about animals (their behaviour, their suffering, etc.) and that argues on the basis of these data (this is animal ethics).

Is it possible to respond directly, and in what way? What strategy should we adopt? How do we respond to the European citizens who have signed the petition, knowing that the question may be legitimate without being scientific? Is it they who should be addressed? Who else should be informed and alerted, and through what channels?

It then seemed to us that the initial formulation could be one of the following forms, or even a combination of the two:

- How does the use of animals in medical research raise questions and moral concerns for those working in this field? How are they formulated and expressed? How do they respond?
- How can the scientific world respond to the concerns of civil society in this area?

We are proposing a four-point plan.

1 - The use animals in biomedical research, like uses and exploitation of animals by humans, raises a number of moral issues.

2 - A discussion of the European Citizens' Initiative then addresses the issue of information about these practices and the possible reactions to critics who are not necessarily seeking dialogue. Nevertheless, how can we use our own communication and media outreach to respond to these critics and actually improve the way we work with animals?

3 - We will describe the approach taken by our working group and the main results that emerged from it. This is the original part of the information presented here.

4 - Consequently, is it necessary, and how, to change the organisation of work in medical research to respond to the moral problems posed by the use of animals in experiments? It's not just a matter of communicating with critics and civil society. The ambition is to radically transform the working conditions of men and animals, in particular around the question of the "replacement". This certainly starts with talking and listening internally, within teams and research units. Communication can then be developed in the right way, with the right tools and the right partners, while trying to avoid the pitfalls inherent in communication itself.

1. Use animals in biomedical research

1.1. Position of the problem

If we follow contemporary social debates about the relationship between the human species and the animal world, the question that eventually emerges is

"What is an animal? The exchanges we heard illustrate above all the differences in perception, knowledge and sensitivity that exist between the protagonists, with no apparent concern for rapprochement. This quickly leads to a number of paradoxes.

The great diversity still present in the animal world today can be seen in many ways. Specialists vary from one zoological group to another. Nor are specialists the only ones interested in these species. To understand this diversity, we see phylogenetic approaches confronting much more traditional classifications, or rational approaches rubbing shoulders with others that are much more emotional. While the Civil Code has recently (2016) recognised the attribute of "sentient being" for animals, as does the Rural and Maritime Fishing Code, the Environment Code does not. It is therefore understandable that there may be some confusion. The same common pheasant is recognised

It is no longer "sensitive" when it is released before the hunting season, but becomes so again if it is monitored as part of scientific research, even in the field.

Quite symmetrically, the question "Is man an animal?" can also provoke a great deal of debate. Broadly speaking, the answer would be "yes" for biologists, and "yes and no" for anthropologists and philosophers, within the realm of the sciences, including the humanities and social sciences. There are differences between *Homo sapiens* and any other species, just as there are between any two animal species. It is irrelevant to always compare an animal species to the human species, even in the cognitive sciences. Conversely, the technological capacities currently available to the human species require us to reflect on our behaviour towards other species.

Clearly, the use of individuals from certain animal species in medical, ecological, ethological and zootechnical research raises a number of social issues, at least for certain categories of citizens. The image of animal research should not be limited to that of a closed laboratory and pharmacological tests. Numerous ecological, ethological and physiological studies are also carried out in the field. Animals of wild species are followed in their

natural habitats. Some are equipped with identification tags and sometimes, in addition, with sensors and various devices capable of recording a wide range of biological or environmental data. These protocols also raise ethical questions.

The figures in Box 1 give an idea of the number of animals that exist, or are exploited, consumed or killed in France each year, including for leisure activities. The uses and purposes of these animals vary widely but, with the exception of free-ranging wild animals, they all have a legal right to welfare and are recognised as "sentient beings".

1.2. Animals in research

In simple accounting terms, the number of animals used by biomedical research centres is relatively small compared with the number of animals used for breeding, companionship or hunting. It should be pointed out that official statistics are difficult to compare over time, from one survey to another, because counting methods change. The benefits to society of research, breeding, companionship and hunting are difficult to compare, and the issue is far from simply one of accounting.

Strangely enough, and without going into too much detail on this point, we may come across zootechnical developments sometimes quite close between categories despite

"The 'construction' (creation and selection) of animals for research The 'construction' (creation and selection) of animals for research (mini-pigs, genetically modified mice) is reminiscent of certain achievements in animal breeding ('culard breeds of cattle in which females are unable to calve without a caesarean section). Pets are not to be outdone. There are dog and cat breeds that are either non-viable outside a constant human environment, or selected according to animal-object criteria that are probably questionable.

Today, the rules governing the rearing and care of laboratory animals are well regulated. Numerous standards exist in France and Europe. As for research practices themselves, they are governed by the 3Rs rule (reduce, refine, replace), which has become classic and is constantly evolving and improving. A national association such as AFSTAL (www.afstal.com Association française des sciences et techniques de l'animal de laboratoire) is entirely dedicated to this. AFSTAL is a French association under the law of 1901, founded in 1972, serving people involved in animal experimentation to help them train, inform themselves and disseminate their know-how in this field , the goal being to adopt ethical conduct and to improve

in vivo" experimentation. AFSTAL has over 500 members. A wealth of information is also available the GIRCOR website (www.recherche-animale.org Groupe Interprofessionnel de Réflexion et de COmmunication sur la Recherche). GIRCOR is an association under the French law of 1901 which brings together biological and medical research establishments in France: public research institutions, major institutes, pharmaceutical companies and private research centres.

2. The 2015 "stop vivisection" European Citizens' Initiative

In 2015, a European Citizens' Initiative petitioning for a ban on the use of animals in biomedical and toxicological research and consequently calling for the repeal of European Directive 2010/63/EU on the protection of animals used for scientific purposes obtained more than a million signatures, forcing the European Commission to examine and respond to this request. The Commission thus reaffirmed the need to speed up the implementation of the 3Rs rule, and in particular the replacement of animals, an ultimate objective which nevertheless remains premature to date if we wish to continue to advance research and protect human and animal health and the environment.

It should be noted that the organisation behind this initiative, "Stop Vivisection", is using outdated and inaccurate terminology, as vivisection is banned in France and the European Union. The mere use of this expression may suggest a lack of willingness to engage in dialogue, as well as a risk of drifting into the realm of emotion if this is ill-founded and poorly controlled, a drift far removed from the issues surrounding the protection of animals used for scientific purposes and the corresponding stakes.

The request associated with the petition does not exactly correspond to a scientific question, since it is simply a question of no longer using animals for research (see the Commission Communication of 03 June 2015). Nevertheless, in December 2016, largely in response to this citizens' initiative, the European Commission organised a two-day scientific conference in Brussels around reducing the use of animals in research. The exact title is: "Non-animal approaches; the way forward", which echoes recital (10) of the directive (see above).

It is interesting to note that the programme announcement explains that the aim of this meeting is "to engage in a dialogue with the scientific community on how to harness advances in science for the development of scientifically validated animal-free approaches and to move towards the ultimate goal of doing away with animal testing altogether". Aside from the rather complex wording, it is clear this is not the ultimate goal.

explicitly specified with whom the scientific community should engage in dialogue. In Brussels, as all the speakers and most of the participants came from this community, the dialogue was clearly already underway, at least between them. The scientists present also seemed satisfied with the conference. It is less easy to ascertain the opinion of the petitioners, who co-initiated these meetings, since they withdrew a few weeks beforehand. Their letter of justification suggests that the scientific conference, in terms of form and/or content, no longer corresponded to what they had imagined and hoped for.

It is possible that the best response to a non-scientific societal demand, even if it directly and primarily concerns the scientific world, is not simply to organise a scientific symposium. On the one hand, the response needs to find the most appropriate channels, both to the context and to the citizens concerned. On the other hand, the conference did provide the Commission with an opportunity to take stock of the real progress made in reducing the use of animals in biomedical research and the directions to be encouraged in order to pursue and intensify this approach. There is also a European platform entirely dedicated to the development of alternative methods (Ecopa for European consensus - platform for alternatives, <http://www.ecopa.eu/>), represented in France by Francopa (<http://www.francopa.fr> Plateforme nationale dédiée au développement, à validation et à la diffusion des méthodes alternatives en expérimentation animale). Francopa is the GIS "The project is supported by the French Ministries of Ecology and Research, INERIS and Ansm.

To conclude with the European Citizens' Initiative and the administrative process that has been set in motion, we can point to the European Ombudsman's Decision 1609/201/JAS of 18 April 2017, which concludes that "*There* no maladministration by the European Commission".

3. Approach of the IRC "Representation of animals in research" sub-group

3.1. Organisation of work

This apparent dichotomy between the scientific and non-scientific communities also seems to exist in France, particularly within an institution like Inserm. Since the ethics committee was set up in 2013, we have been trying to approach the point of view of users, scientists, technicians and animal workers. One of our first surprises was the difficulty we had in mobilising people internally around this issue. Organising three days, two in Paris and one in Montpellier, each time involving a few volunteers interested in the issues, proved to be more complicated than expected. This can be interpreted in at least three non-exclusive ways:

- lack interest in the subject because it's not a priority,
- lack of availability,
- no wish discuss this subject, for whatever reason.

Consequently, the sample of people who agreed to talk to us on this occasion should not be considered as statistically representative of the community concerned. There are unknown risks of bias.

Over the three days, the mornings were devoted to discussions with designers of research programmes using animals, and the afternoons to an equivalent exchange with people in direct contact with animals (animal care, breeding, carrying out procedures) and with animal facility managers.

The results of these interviews show, however, that the practice and execution of this work are not as smooth as they appear. On the whole, the people we met were satisfied with the value of the research and the way it was carried out. The improvements and changes that have taken place since the implementation of the new directive, among other things, are appreciated. At the same time, a number of questions and observations are emerging. The notion of well-being can and must be applied to both sides, humans and laboratory animals. The issue of working with and for animals, which some members of our **group** have already explored on farms, is also relevant here. Here is a summary of these interviews.

3.2. Summary report of the three series interviews

Dates: 31 March 2015 Paris, 31 March 2016 Paris, 24 May 2016 Montpellier.

Participants: 24 researchers, 22 technicians

General theme, approach: working relationships with animals according to a plan organised around two main headings (see Appendix 2, which corresponds to the template used for the interviews on 31 March 2016 in Paris, very similar to that of the other two):

- Dealing with social criticism (public sphere, private sphere -family-, sphere of close friends-),
- Working with animals is developed a little differently for scientists and zootechnicians.

The plan was therefore to ask a certain number of questions identified beforehand, but afterwards the discussions and exchanges were free so that everyone could express themselves. However, even internally, it didn't always seem easy to get everyone to speak their mind. Several points nevertheless emerged and were reinforced from one discussion to the next.

- The notion that the research carried out is indeed of general interest is widely shared by all participants.
- The new rules, those of the 2010 directive which came into force in France in 2013, were generally well received. However, the tightening of standards was sometimes felt to be burdensome, or even counterproductive, but this opinion remained in the minority. The regulatory requirement for training in animal experimentation seemed very justified, even though some people (doctors, for example) sometimes considered it unnecessary in their case.
- It is essential for all staff to have a place where they can talk to each other.
- The development of technical platforms, separate from the laboratories and units, complicates exchanges and seems possibly contradictory with the previous point. Containment in isolated areas, although well understood in terms of biosafety, is nevertheless viewed with reservations. Closed doors are considered very restrictive.
- The compartmentalisation of tasks associated with the industrialisation of animal production contributes to the dehumanisation of work. This can be seen in certain methods of systematically testing new molecules, which requires the use of large numbers of animals.

- Changes in legislation, organisations and practices have led to a change in habits, which can sometimes be tricky, but which should be resolved with the arrival of younger generations who are more, or better, aware.
- Primates really do pose particular questions in relation to other mammals, mammals in relation to other zoological groups, and pets in relation to other types of animal. The existence of "mascots" seems difficult to avoid. These are individuals to which the staff have become attached and which are kept beyond the initial protocols. This practice is perhaps partly justified or necessary, as their presence and upkeep can perhaps compensate in a positive way for what has to be done elsewhere. Can we compare this with the existence of small temples in Japanese research laboratories? A ceremony is held there every year to express genuine gratitude to the animals for their contribution to the work carried out.
- The "killing" of animals remains a difficult moment. The very terminology imposed by the directive is resented by staff.
- The practical organisation of work can pose a problem, as can the way in which it is discussed. We need to think about the links with outside life, for example, without it representing too many two different unconnected lives. In this respect, there is real suffering at work for some humans, which needs to be taken into account and dealt with just as much as issues relating to animal welfare. Killing operations remain a sensitive issue, particularly because they are not always explicitly justified or because of their sheer volume. The official figures published by the French Ministry of Research on the number of animals used systematically underestimate the reality, since they do not take into account animals produced and eliminated because they are non-compliant (male/female, homozygous/heterozygous, etc) or animals used in a non-procedural context (killing of animals for tissue or organ harvesting). Some humans suffer from this
This "hypocrisy" can also be found on farms (male chicks, male kids eliminated at birth, for example, and not counted in official statistics).
- There may be a difference in feelings depending on whether you are a technician, in constant contact with animals, with no strong investment in the choice of research questions and no underlying motivation, or a researcher. This hierarchical hiatus is important because it clearly illustrates that depending on the position held, the context and the issues to be dealt with, the same moral standards do not prevail in the relationship with animals. This conflict of standards is reminiscent of the other conflict, even if the terms are different, between a certain section of society and scientists.
- Communicating about the use of animals appears to be essential but tricky. Not everyone has the same facility or the same legitimacy to talk about it. It is

sometimes easier to know what not to say than what to say. In all cases, the teams involved need clear guidelines from the institutions.

- Ethical reflection on the use of animals in research is not just a question of communication, of course, but communication can be nourished by it.

4. Discussion

4.1. How do you work with animals in medical research?

The initial idea was based on the principle that, a priori, since the scientific world (represented here by the Inserm community) accepts the principle that we can work and experiment with animals, we can consequently extrapolate it to society as a whole. It seems that this is not the right starting point. The question of

The question of "animal models" in medical research, raised by society, at least by some of its stakeholders, even in non-scientific terms, must be considered legitimate. The answers must not deny the relevance or irrelevance of the question, provided that a genuine effort is made to educate the public.

The difficulty lies partly in the possible inadequacy of a scientific answer to a question that is not scientific, and partly in the fact that some opponents do not seek dialogue. If the question raised were purely moral, or even societal, what would be the best way of tackling it? Nor can it be reduced to an element of language or communication. In the study of pathologies affecting both humans and various animal species, as in the case of zoonoses or transplants, the scientific approach is understandable and perhaps easier to accept. The elements appear more complex to develop and must be well chosen in the case of toxicology. Nevertheless, in all cases, the technical arguments are available.

A well-documented example is the research developed during the mad cow crisis using the 'humanised' mouse model. This mouse model has made it possible to gain a better understanding of prion diseases, a real fundamental and applied challenge, associated with a very long latency period in the development of the disease (months with mice, years with cattle and humans).

The case of cosmetology is more or less settled and does not have to be systematically associated with that of medical research. Nevertheless, under the REACH⁶ regulation, the toxicity of basic molecules still has to be tested, and in most cases this still includes a stage involving animals. The development of alternative methods is encouraged at this level too.

The overall impression is that the majority of researchers recognise the validity of changes in regulations, the constant improvement in practices, and the strengthening of the 3Rs rule, but do not fully understand the question being asked because it is not of a scientific nature and stems from another social field. As a result, communication is sometimes clumsy, even though it is always felt to be essential and requires real communication.

"The questioning of the animal model undoubtedly corresponds, on the part of some critics, to a misunderstanding of the notion of model and comparison. The questioning of the animal model undoubtedly reflects, on the part of certain detractors, a misunderstanding of the notion of model and comparison. Comparing the clinical, immune and physiological development of a human being and an individual from a certain animal species is always enriching, whether the developments are identical, parallel or different. In the first case, the evolution in one can directly help to anticipate the evolution in the other. In the latter case, the differences can lead to the discovery and understanding of new mechanisms with applications that can benefit others.

If necessary, we could also use the most recent elements from research the very origin of life, the links between bacteria, archaea and eukaryotes, and gene transfer, which reinforce both the notions of symbiosis and the uniqueness of living processes as known on Earth. As we understand it today, life on our planet is a unique phenomenon that has diversified considerably but retains a real uniqueness in its fundamental mechanisms.

Finally, everyone noted that the hierarchy within animal species imposed by some of their defenders could also pose moral problems. A macaque is more moving than a dog, which is more moving than a mouse, which is more moving than a fish, which is more moving than a mosquito, which is more moving than a nematode, which is more moving than a bacterium.

4.2. Research, ethics, communication and animals

These notions of information and communication about research involving animals, which are regularly raised, raise a number of questions in themselves. Should they be the subject of a specific research project, approach or paragraph? Without claiming that the debates and oppositions can only be calmed and resolved by appropriate information and communication, by "goodcommunication, we must nevertheless avoid reducing the issues to a simple question of form, while evacuating the substance.

The "Regards croisés sur la relation Humain Animaux" conference organised by the CNRS on 5 October 2016 seemed to us to be a good illustration of the difficulties encountered at this level.

The conference was opened and closed by the centre's head of communications. It ended with the projection of a one-way video in which a series of scientists explained in all good faith the interest of their research and the obvious use of animals without ever the slightest doubt and without any open discussion, possibly contradictory. In the debate that followed the screening in the conference room, some people could not understand how anyone could criticise this lack of opposition. Yet the argument was simply that the real ethical issues involved could be approached.

Conclusion

At the end of this reflection and after analysing the interviews, we do not claim to have definitive answers to the questions raised throughout the process. We have sometimes been surprised by the discussions generated and by the diversity of the official tools dedicated these issues but apparently not always well enough known to everyone, Francopa⁷ for example, outside the circles of insiders.

The European Citizens' Initiative has also been a source of inspiration! Its emergence seemed to worry the research structures. The responses seemed to oscillate between information-training and communication.

Is it researchers' perception of the use of animals in research that poses the problem? Or is it their difficulty in understanding the societal issue? The current academic response alone seems insufficient. Perhaps we just need to inform the public better and help them to do so. From whom? To whom? In what ways, on what occasions?

Should the debate be confined to the scientific community or should we try to go beyond the laboratory? Critics opposed to the use of animals in research are trying to occupy the public arena. Are we equipped to do the same? Are we legitimate enough to venture into the public arena?

The current relevance animal models is well accepted by the scientific community and can be explained to society. However, there are two related issues of a very different nature:

- Is it effective?
- Is it moral?

To answer this question, could we replace the binary "yes/no response with a weighted, negotiable and transparent utility approach?

If access to knowledge is a right linked to our democracies, then we must recognise the current importance of the use of animals in research. Many advances have been made by working with animals, and not just in the field of biomedical research. This is as true for the human species as it is for other species (veterinary research).

Social pressure, even when driven by emotions and concern about the fate of these animals, is a reality. This pressure is also likely to reinforce rules such as the 3Rs and can therefore have a positive impact on the development of the approach. It's a system that can be mutually beneficial for everyone, including the animals.

Patient organisations can bring an important and legitimate message to bear on these issues. The Inserm Mission Associations Recherche & Société and the GIRCOR have taken an initial look at how society feels about this issue by means of a survey conducted among Inserm's network of patient organisations. Preliminary results show that $\frac{3}{4}$ of the patient organisations that responded consider the use of animals in biomedical research to be a priority issue on which they would like to obtain information, particularly on the limits of so-called alternative methods (the 3Rs rule) and the current framework for procedures. In their opinion, these clarifications should come from the research institutes. The vast majority of associations believe that working groups bringing together researchers and members civil society would help to move the debate forward. Nine of these associations wrote a letter to the Minister for Research in September 2017 asking her to support the use of animals in research programmes dedicated to the corresponding diseases when this seemed necessary.

In fact, scientific information and argumentation are essential to understanding the reasons behind research, of which the use of animals is an integral part. To call it into question is to call into question medical advances whose aim is nonetheless to benefit all citizens, their animals and else. However, the ethical question remains, and while it may sometimes appear to be sidelined by scientists, it is no less present.

While society may understand the value of animal models, it is still waiting for scientists to take their concerns into account. How should scientists and zootechnicians present themselves in a situation in which they themselves may be victims, a situation that can sometimes

a source of great suffering? One of the lessons to be learnt is, of course, the uneasiness of some staff working with animals. Improving these working conditions goes hand in hand with a desire to steadily reduce the use of animals in experimental procedures.

However we may view the use and representation of animals in medical research, it is important to focus the debate so that it becomes a collective issue, without pitting society against science, 'good' against 'evil', or ethics against research. It is in these directions that future developments could be suggested.

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Notes

¹Public scientific and technological establishments ²Institut National de la Santé et de la Recherche médicale ³Inserm Ethics Committee

⁴Animal Experimentation Office

⁵National Centre for Scientific Research

⁶Registration, Evaluation, Authorisation and restriction of CHemicals (REACH) "is a European Union regulation adopted to better protect human health and the environment from the risks associated with chemical substances, while promoting the competitiveness of the EU chemical industry. It also encourages alternative methods for assessing the hazards of substances in order to reduce the number of animal tests."

⁷Francopa: French platform dedicated to the development and dissemination of alternative methods in animal experimentation

Box 1 A few figures on the various uses animals in France

Livestock in France

Source: Agreste, 2014, Ministry of Agriculture

	<i>Raised</i>	<i>Slaughtered</i>
Cattle	19 300 000	5 800 000
Sheep	7 200 000	4 200 000
Goats	1 250 000	719 000
Pigs	24 100 000	23 700 000
Poultry	1 100 000 000	935 100 000

Animals used for and by research in France

Source: Statistical surveys 2014 and 2015, Ministry of Research

<http://www.enseignementsup-recherche.gouv.fr/cid70613/www.enseignementsup-recherche.gouv.fr/cid70613/enquete-statistique-sur-l-utilisation-des-animaux-a-des-fins-scientifiques.html>

Species	2014	2015
Mouse	853 555	1 007 245
Fish	524 024	413 183
Rats	131 722	157 309
Rabbits	88 334	108 110
Cobayes	36 152	44 414
Primates	1 103 ^a	3 162 ^c
Birds	92 776 ^b	113 167 ^d

^(a) 845 cynomolgus macaques, 149 baboons, 36 rhesus macaques, 14 cercopithecines, 4 saïmiris, 55 prosimians.

^b Of which 48,528 domestic chickens

^c Including 2756 cynomolgus macaques, 157 prosimians, 97 marmosets and tamarins, 64 rhesus macaques, 56 cercopithecines, 19 baboons, 13 saïmiris

^d Of which 66,734 domestic chickens

Pets in France

Source: FACCO press release May 2015 (<http://www.facco.fr/>, Chambre syndicale des fabricants d'aliments préparés pour chiens, chats, oiseaux, et autres animaux familiers)

Cats	12 680 000
Dogs	7 260 000
Small mammals	2 840 000
Birds	5 750 000

Some figures (estimates) for the 2013-2014 hunting season, for 6 mammals and 6 birds out of a total of 90 species authorised to be hunted in France

Source: ONCFS (www.oncfs.gouv.fr, Office national de la chasse et de la faune sauvage)

Wild boar	724 000
Red deer	63 000
Deer	590 000
Chamois	16 500
Fox	430 000
Wild rabbit	1 500 000

Wood pigeon	5 000 000
Common pheasant	3 000 000
Music thrush	1 500 000
Mallard	1 200 000
Red partridge	1 274 000
Grey partridge	967 000

Appendices

Annex 1: European Directive 2010/63/EU

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:276:0033:0079:fr:PDF>

Appendix 2: Programme for the three days of meetings :

Example: Interview schedule for 31 March 2016, Paris

RESEARCHERS

A. DEALING WITH SOCIAL CRITICISM

- 1. THE PUBLIC SPHERE**
- 2. THE PROFESSIONAL SPHERE**
- 3. FAMILY AND FRIENDS**

B. WORKING WITH ANIMALS

- 1. BETWEEN DISTANCE AND CLOSENESS**
- 2. ASSUMING THE VIOLENCE OF WORK CONTENT**
- 3. WORK STANDARDISATION: THE 3RS RULE (TO BE DEVELOPED)**
- 4. MANAGING SUFFERING AT WORK COLLECTIVELY (TO BE DEVELOPED)**

ANIMAL LOVERS

A. THE WORKING RELATIONSHIP BETWEEN ANIMAL KEEPERS AND ANIMALS: FROM PLEASURE TO SUFFERING

- 1. THE NEW LIFE OF ANIMALS: A SOURCE OF SATISFACTION AT WORK**
- 2. THE VIOLENCE OF WORK CONTENT: ETHICAL SUFFERING**

B. COLLECTIVE ORGANISATION OF WORK

- 1. FACING ETHICAL SUFFERING COLLECTIVELY**
- 2. THE WORKING RELATIONSHIP WITH RESEARCHERS**
- 3. *IN VIVO* EXPERIMENTAL MODEL: A PROFESSIONAL CONTROVERSY**
- 4. ANIMAL RETIREMENT: AN ALTERNATIVE TO LABOUR VIOLENCE**

C. DEALING WITH SOCIAL CRITICISM