1

Living under COVID-19 pandemic

- During this period we all desperately are looking forward to have from the scientific community **"good news"**
- **Social pressure** from the community to scientists is highest possible
- **Time** is very limited as thousands of people are passing away

2

- Probably this period could be considered as a period of “open communication” between scientists and the public concerning the biomedical research:
  - MEDIA (television, radio, newspapers, websites)
  - SOCIAL MEDIA (Facebook, Twitter, LinkedIn, Blogs)
  - INTERVIEWS with scientists
  - Hundreds of PRE-PRINTS uploaded everyday
  - Health & Science JOURNALISTS

3

EDITORIAL

Science journalism grows up

By the early 1930s, an unlikely pair—a powerful national newspaper publisher and a California-based zoologist—decided that they'd had enough. Enough of half-baked reporting on research results, enough of stories that left readers confused about even the basic principles of science. They wanted something better. They wanted reporting that encouraged a "scientific habit of mind," a citizenry aware of the role of research in everyday life.

However unlikely, the alliance between Edward Willis Scripps, founder of one of America's largest newspaper chains, and Harvard-trained zoologist William Emerson Ritter, ran deep. The two men shared a belief in science as the new century's most powerful transformative agent—and also a belief that scientists were doing a poor job of communicating this. By April 1921, they'd decided on a solution, a venture called Science Service, which would be dedicated to providing smart and positive science stories to the public. The organization they formed a century ago would grow into Society for Science, publisher of *Science News*. True science journalism—independent inquiry into the scientific enterprise and the illumination of research with all its wonderfully complex human interactions—would come much later. But with the founding of Science Service, a new profession did take its first steps, albeit somewhat stumbling ones.

Although scientific societies and organizations supported the new service, researchers themselves remained wary of the often flamboyant journalism of the early 20th century. In 1934, a dozen American science writers formed a National Association of Science Writers, in part to build better relationships with their wary sources, promoting it as a way to identify elite, science-savvy writers from the other journalistic riff-raff. Boyce Rensberger, a former director of the Knight Science Journalism Program, once described this alliance between scientists and journalists as the beginning of the "Gee Whiz" period of science journalism, one that he believed led directly to embarrassing fan-boy coverage of the development of nuclear weapons and the post–World War II arms race.

As Rensberger and others also note, the profession reluctantly let that model go. Science writers were sometimes downright hostile when faced with the environmental downsides of technological development that appeared during the 1960s: air pollution, water pollution, Rachel Carson–driven warnings that unchecked use of pesticides was unsafe, and more. The best science stories, one leading journalist argued, resulted from cooperation with "enlightened industries."

Still, journalistic doubts concerning relentlessly cheery science coverage deepened, and emphasis on telling the whole complicated story also deepened as the profession continued to expand, marked by formation of groups like the European Union of Science Journalists' Associations in 1971, and more.

It's in this moment of doubt that science journalism began to come into its independent own. The last two decades of the 20th century saw a new emphasis on professional training, a growing number of female science journalists (although other forms of diversity have been slow to follow), and newly sharp-edged investigative reporting that looked at everything from the politics of HIV research to space shuttle failures to risky chemical contaminants. As Liza Gross, author of *The Science Writers' Investigative Reporting Handbook*, points out, critics who called science journalists just a bunch of "perky cheerleaders" for researchers were gradually being proved wrong.

> **"...science reporters... portray research accurately in both its rights and its wrongs..."**

The rise of this century's digital era of communication has served to accelerate change, both in the way writers tell stories, employing tools from podcasting to data visualization, and in their visibility. Science journalists now readily cover contentious areas of science—from climate change to vaccines to the long-standing culture wars around evolution—with clarity and, in turn, deal with furious pushback from skeptics on social media and other platforms.

The original, science-boosting mission of Science Service hasn't been lost. Today, countless "science communicators"—from press officers to scientists themselves—work to foster a positive portrait of science. And there's still a place for journalistic stories about the wonders of science. But the past century has proved that this is not the most important contribution of science reporters. Rather, it is to portray research accurately in both its rights and its wrongs and stand unflinchingly for the integrity of the story. Scripps and Ritter were smart men, and there's a strong argument to be made that they would approve this endpoint.

–Deborah Blum

Deborah Blum
is the director of the Knight Science Journalism Program at the Massachusetts Institute of Technology in Cambridge, MA, USA and the publisher of *Undark* Magazine. dblum@mit.edu; @deborahblum

10.1126/science.abj0434

4

Balancing use of animals and the scientific outcome by the public

- Public is invited to balance the use of animals with the scientific outcomes which may influence humans, animals or the environment

5

- Does the public have the expertise/information to judge?

- How public can balance severity vs. scientific outcome?

- Based on which criteria? (common sense)

IN MOST OF THE PROJECTS THE RESULTS MAY TAKE YEARS TO GET IN OUR EVERYDAY LIFE

6

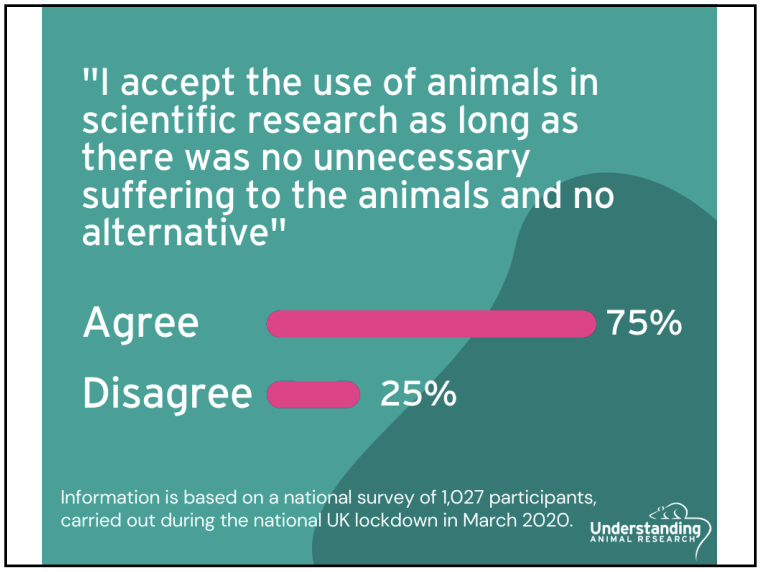
Public attitudes to animal research under COVID-19

Survey report

Understanding ANIMAL RESEARCH

Bella Williams, April 2020

7



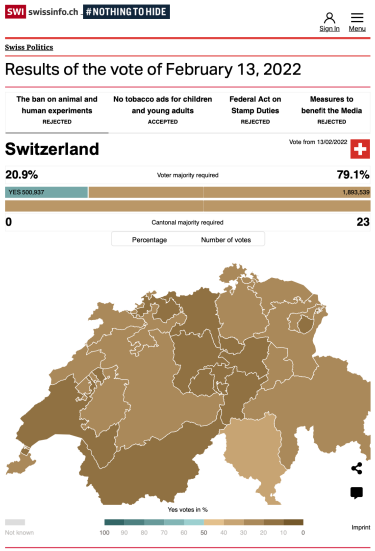
8

Findings part 4: changes to views about animal research

Respondents were asked **do you feel that your views around animal testing and animal research have changed in light of the COVID-19 outbreak?** The responses were provided as short comments and manually coded to indicate a subjective change of views. Allowing that survey respondents tend to under-report changes in attitudes, a substantial change in views can be observed, with **11**% of respondents indicating that their views around animal research have changed. In all cases their views have become more favourable, and many cite the severity of the situation. Some reported that they had not given the matter much thought until now.

"Yes I do [feel my views have changed]. Before I was very against animal testing. But after how many people have been infected and are predicted to be infected we've got to do something."

9



10

This existing situation should not be considered as an excuse to continue using animals

On the contrary

This situation demand further justification and transparency on the use of animals in research

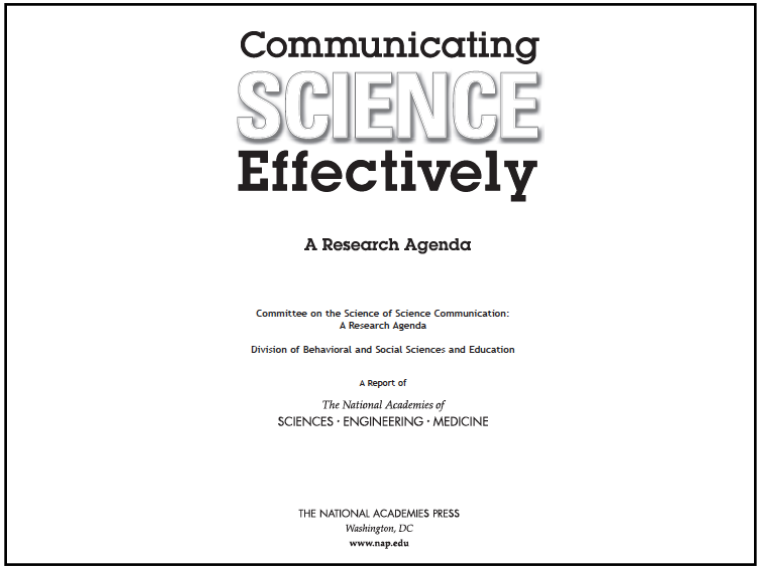
11

SCIENTISTS

COMMUNICATION SKILLS

COMMUNICATE THE RIGHT MESSAGE WITH THE RIGHT WAY

12


Communicating
SCIENCE
Effectively
A Research Agenda
Committee on the Science of Science Communication:
A Research Agenda
Division of Behavioral and Social Sciences and Education
A Report of
The National Academies of
SCIENCES · ENGINEERING · MEDICINE
THE NATIONAL ACADEMIES PRESS
Washington, DC
www.nap.edu

13


COVID-19
COMMUNICATING
SCIENCE IN TIMES
OF COVID-19
A SELECTIVE OVERVIEW OF
GOOD PRACTICES
cost
EUROPEAN COOPERATION
IN SCIENCE & TECHNOLOGY

14

COMMUNICATION SKILLS!!!

15

What is Directive 2010/63/EU?

This is the **legislation** that regulates the use of animals for scientific purposes in the EU.

It safeguards welfare standards and seeks to **replace**, **reduce** and **refine** (3Rs) the use of animals in research.

It also promotes the need for greater **transparency** and **openness** on animal research by the biomedical sector.

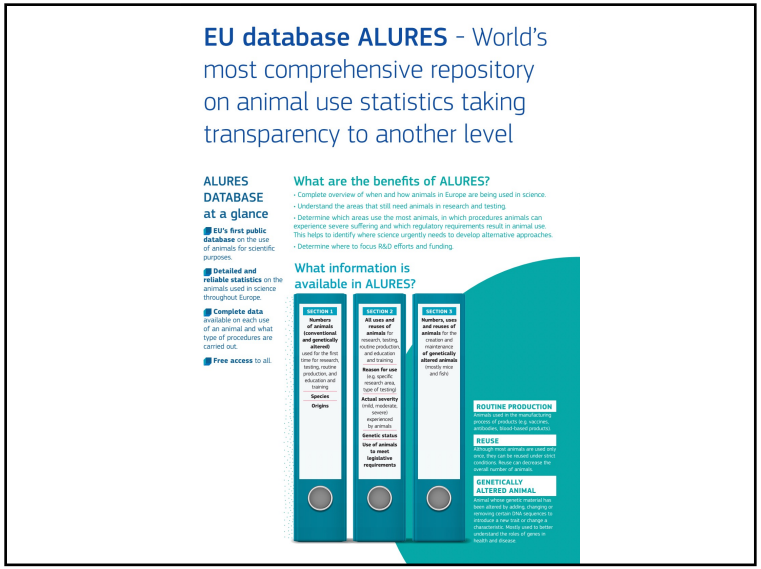
#EUAnimalStats

European Animal Research Association

16


European Commission
Making the use of animals in science more transparent

17


EU database ALURES - World's most comprehensive repository on animal use statistics taking transparency to another level
ALURES DATABASE at a glance
EU's first public database on the use of animals for scientific purposes.
Detailed and reliable statistics on the animals used in science throughout Europe.
Complete data available on each use of an animal and what type of procedures are carried out.
Free access to all.
What are the benefits of ALURES?
• Complete overview of when and how animals in Europe are being used in science.
• Understand the areas that still need animals in research and testing.
• Determine which areas use the most animals, in which procedures animals can experience severe suffering and which regulatory requirements result in animal use. This helps to identify where science urgently needs to develop alternative approaches.
• Determine where to focus R&D efforts and funding.
What information is available in ALURES?
SECTION 1
Numbers of animals (conventional and genetically altered)
used for the first time for research, testing, routine production, and education and training
Species
Origins
SECTION 2
All uses and reuses of animals for research, testing, routine production, and education and training
Reason for use (e.g. specific research area, type of testing)
Actual severity (mild, moderate, severe) experienced by animals
Genetic status
Use of animals to meet legislative requirements
SECTION 3
Numbers, uses and reuses of animals for the creation and maintenance of genetically altered animals (mostly mice and fish)
ROUTINE PRODUCTION
REUSE
GENETICALLY ALTERED ANIMAL

18

Protecting and improving the welfare of animals in scientific research

How are animals protected?

In Europe, **all living animals used in science are protected by very strict legislation**. All animal studies must comply with this legislation. Animals cannot be used for scientific purposes without prior authorisation.

Authorities can **only allow the use of animals when there are no alternative, non-animal methods available.** In addition, the **use of the animals must be justified** by the expected benefits, also taking into account ethical considerations.

Making the EU a global leader in transparency

DIRECTIVE ON THE PROTECTION OF ANIMALS USED FOR SCIENTIFIC PURPOSES

REPLACE animal use with non-animal methods wherever possible.

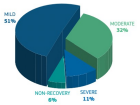
REDUCE the number of animals by obtaining the same amount of data using fewer animals or obtaining more data by using the same amount of animals.

REFINE the use to reduce pain, suffering and distress and to improve animal welfare.

How EU legislation protects animals used for scientific purposes

- There is a legal obligation to eliminate or minimise pain, suffering, distress and lasting harm on animals to a minimum level possible.
- All efforts to minimise pain, suffering and distress have to be made from the planning stage.
- Every establishment must have a named person responsible for the welfare and care of animals, as well as a designated veterinarian.

SEVERITY OF USES



19

The EU is committed to phasing out the use of animals in science when it is scientifically possible to do so. It is working towards the ultimate goal of replacing all animals used for scientific purposes, but more time is needed to develop alternative approaches that do not involve animals.

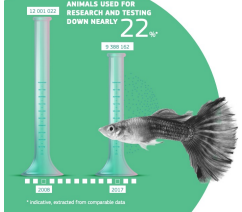
Why is it still necessary to use animals in research?

Animals have played key roles in nearly every major medical advance of the last century. Much progress has been made in the prevention and treatment of human and animal diseases. We would not enjoy better health, improved quality of life and longer life expectancy without the knowledge gained from animal research.

Technological advances, computer simulations and test tube methods already greatly reduce the number of animals used, but they are not yet able to fully replicate living organisms' complexities and reactions. Considerable scientific challenges remain and often alternative solutions are not available.

It is the European Commission's **ultimate goal to completely replace animals in science.** Until this becomes reality, it is committed to reducing the number of animals and respecting the welfare of the animals used for scientific purposes.

ANIMALS USED FOR RESEARCH AND TESTING DOWN NEARLY 22%*

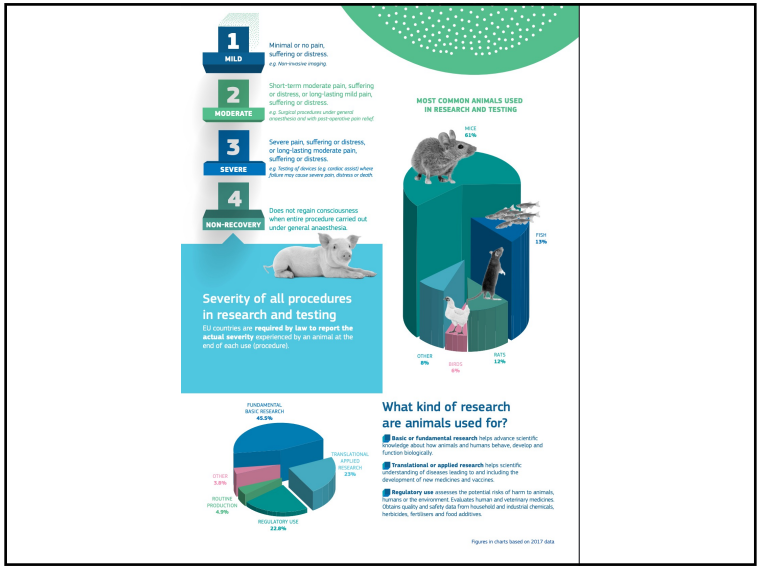


* indicative, extracted from comparable data

WHAT ARE SCIENTIFIC PURPOSES?

All uses of animals for basic, translational and applied research, regulatory testing and production, education and training, as well as the creation and maintenance of genetically altered animal lines.

20



21

European Commission, Directorate-General for Environment, *Non-technical project summaries under Directive 2010/63/EU on the protection of animals used for scientific purposes* – , Publications Office of the European Union, 2022, https://data.europa.eu/doi/10.2779/778680

22

Non Technical Summary

- Enhance openness and transparency regarding the use of animals in research
- Facilitate easy access and understanding of the various areas in which animals are used, between the public and non-governmental organizations (NGOs)
- Encourage scientists to develop and improve their communication skills and better explain their research interests to the public
- Improve the quality of scientific information available to the public and prevent the dissemination of false information;
- Support the exchange of good practice on the 3Rs principle to replace or reduce the number of animals used or to improve experimental techniques;

23

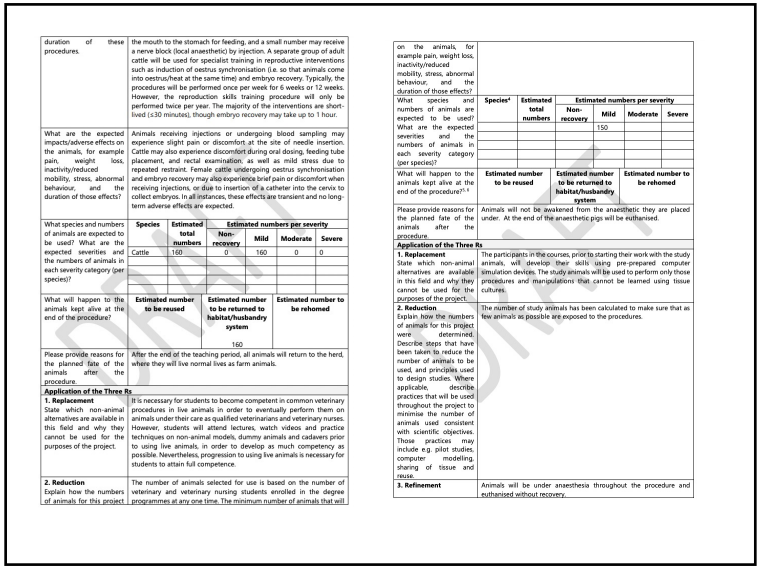
Example 7 (good quality)

Title of the project	Teaching and assessing competency in clinical skills involving cattle relevant to veterinary degree programmes
Duration of project (in months)	12 months
Keywords	Veterinary trainees' education; clinical skills practice; reproductive technology; cattle management;
Purpose of project (multiple choices possible)	Higher education Training for the acquisition, maintenance, or improvement of vocational skills
Objectives and predicted benefits of the project	
Describe the objectives of the project (for example, addressing certain scientific unknowns, or scientific or clinical needs).	The overall purpose and objective of this project is to give both veterinary students and nurses the best education possible, and make sure they become professionally competent individuals who can provide a good standard of care to animals when they qualify. The teaching and assessment of basic animal husbandry procedures, as well as practical clinical competencies, is an essential component of veterinary education and is a requirement of the national competent authority for the veterinary profession and international accrediting organisations. The aim of this project is to train undergraduate veterinary medicine and veterinary nursing students in standard and specialist veterinary practices in cattle. Training using live animals is essential in order for students to gain competence in performing procedures that they will use throughout their veterinary careers.
What are the potential benefits likely to derive from this project? Explain how science could be advanced, or humans, animals or environment may ultimately benefit from the project. Where applicable, differentiate between short-term benefits (within the duration of the project) and long-term benefits (which may accrue after the project is finished).	The ability to perform techniques such as taking blood samples and administering veterinary therapeutics to cattle is mandatory for any qualified veterinarian or nurse, in order to diagnose and treat disease and participate in national disease eradication programmes. A subset of students who wish to develop specialist skills in cattle reproduction will also learn these important skills as part of this project, which they will eventually use in practice. Therefore, the benefit that will arise from this project is that it will improve the husbandry and clinical competencies of both veterinary medicine and veterinary nursing students so that they are better equipped for their careers upon qualification.
Predicted harms	
In what procedures will the animals typically be used (for example, injections, surgical procedures)? Indicate the number and	Over the course of this training project, animals will be subjected to one of three procedures, depending on the skills being trained. Adult cattle will undergo brief restraint, rectal and mammary examinations, blood and urine sampling, and various injection and oral administration techniques. Calves will undergo restraint, placement of a tube through

Example 8 (poor quality)

Title of the project	Development of medical skills of medical and veterinary medical students of University of Europia, and junior doctors, and doctors from University Hospital Europia for the improvement of the quality of their work
Duration of project (in months)	60
Key Words (maximum of 5)[1]	Surgery ; education ; training; pigs
Purpose of project[2] (multiple choices possible)	Higher education Training for the acquisition, maintenance, or improvement of vocational skills
Objectives and predicted benefits of the project	
Describe the objectives of the project (for example, addressing certain scientific unknowns, or scientific or clinical needs).	Provision of a theoretical and practical course for medical and veterinary medical personnel, during which the participants learn correct and safe actions during medical and veterinary medical manipulations and surgical operations.
What are the potential benefits likely to derive from this project? Explain how science could be advanced, or humans, animals or environment may ultimately benefit from the project. Where applicable, differentiate between short-term benefits (within the duration of the project) and long-term benefits (which may accrue after the project is finished).	Trainees that have completed the courses will have obtained irreplaceable skills and will have developed their current knowledge of, and skills pertaining to, complex surgical techniques and manipulations. Such knowledge and skills will significantly decrease the potential risk of a doctor or veterinary surgeon making a mistake, and will improve medical and veterinary medical care in general.
Predicted harms	
In what procedures will the animals typically be used (for example, injections, surgical procedures)? Indicate the number and duration of these procedures.	Animals will be anaesthetized throughout.
What are the expected impacts/adverse effects	N/A

24



duration of these procedures.	the mouth to the stomach for feeding, and a small number may receive a nerve block (local anaesthetic) by injection. A separate group of adult cattle will be used for specialist training in reproductive interventions such as induction of oestrus synchronisation (i.e. so that animals come into oestrus/heat at the same time) and embryo recovery. Typically, the procedures will be performed once per week for 6 weeks or 12 weeks. However, the reproduction skills training procedure will only be performed twice per year. The majority of the interventions are short-lived (≤30 minutes), though embryo recovery may take up to 1 hour.
What are the expected impacts/adverse effects on the animals, for example pain, weight loss, inactivity/reduced mobility, stress, abnormal behaviour, and the duration of those effects?	Animals receiving injections or undergoing blood sampling may experience slight pain or discomfort at the site of needle insertion. Cattle may also experience discomfort during oral dosing, feeding tube placement, and rectal examination, as well as mild stress due to repeated restraint. Female cattle undergoing oestrus synchronisation and embryo recovery may also experience brief pain or discomfort when receiving injections, or due to insertion of a catheter into the cervix to collect embryos. In all instances, these effects are transient and no long-term adverse effects are expected.

What species and numbers of animals are expected to be used? What are the expected severities and the numbers of animals in each severity category (per species)?

Species	Estimated total numbers	Estimated numbers per severity			
		Non-recovery	Mild	Moderate	Severe
Cattle	160	0	160	0	0

What will happen to the animals kept alive at the end of the procedure?

Estimated number to be reused	Estimated number to be returned to habitat/husbandry system	Estimated number to be rehomed
	160	

Please provide reasons for the planned fate of the animals after the procedure.	After the end of the teaching period, all animals will return to the herd, where they will live normal lives as farm animals.
Application of the Three Rs	
1. Replacement State which non-animal alternatives are available in this field and why they cannot be used for the purposes of the project.	It is necessary for students to become competent in common veterinary procedures in live animals in order to eventually perform them on animals under their care as qualified veterinarians and veterinary nurses. However, students will attend lectures, watch videos and practice techniques on non-animal models, dummy animals and cadavers prior to using live animals, in order to develop as much competency as possible. Nevertheless, progression to using live animals is necessary for students to attain full competence.
2. Reduction Explain how the numbers of animals for this project	The number of animals selected for use is based on the number of veterinary and veterinary nursing students enrolled in the degree programmes at any one time. The minimum number of animals that will

on the animals, for example pain, weight loss, inactivity/reduced mobility, stress, abnormal behaviour, and the duration of those effects?	

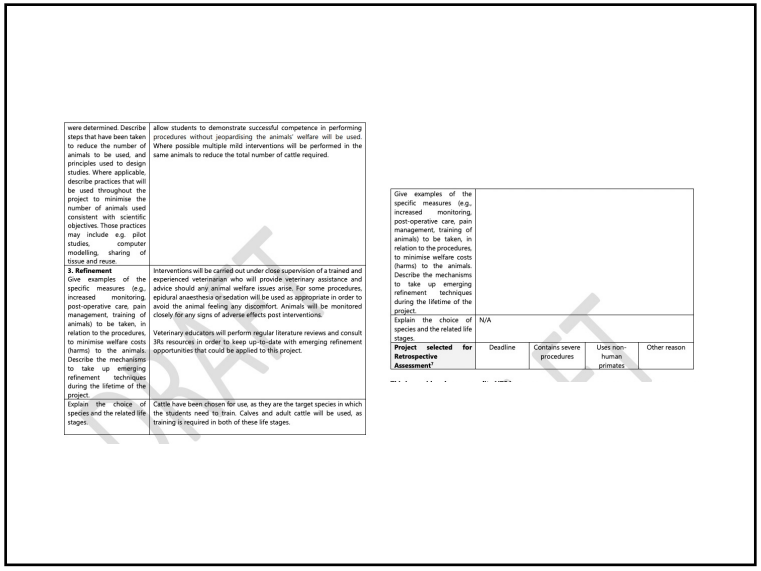
What species and numbers of animals are expected to be used? What are the expected severities and the numbers of animals in each severity category (per species)?

Species[4]	Estimated total numbers	Estimated numbers per severity			
		Non-recovery	Mild	Moderate	Severe
			150		

What will happen to the animals kept alive at the end of the procedure?[5, 6]

Estimated number to be reused	Estimated number to be returned to habitat/husbandry system	Estimated number to be rehomed

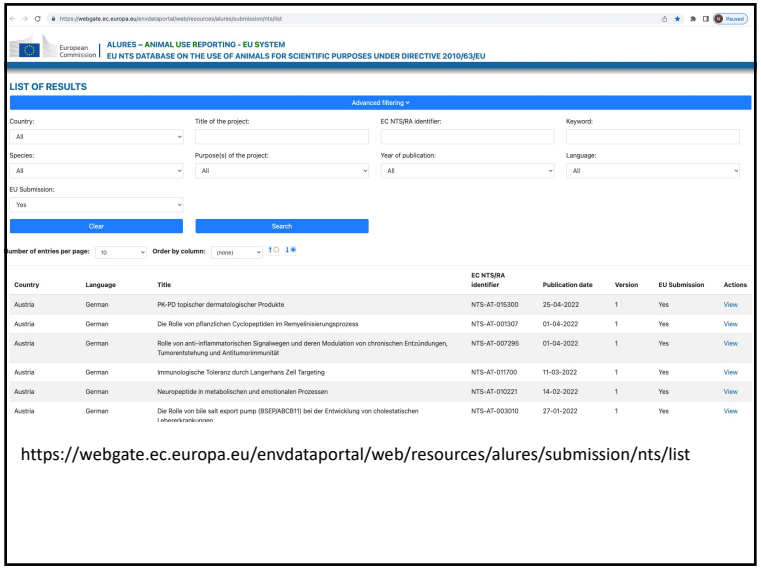
Please provide reasons for the planned fate of the animals after the procedure.	Animals will not be awakened from the anaesthetic they are placed under. At the end of the anaesthetic pigs will be euthanised.
Application of the Three Rs	
1. Replacement State which non-animal alternatives are available in this field and why they cannot be used for the purposes of the project.	The participants in the courses, prior to starting their work with the study animals, will develop their skills using pre-prepared computer simulation devices. The study animals will be used to perform only those procedures and manipulations that cannot be learned using tissue cultures.
2. Reduction Explain how the numbers of animals for this project were determined. Describe steps that have been taken to reduce the number of animals to be used, and principles used to design studies. Where applicable, describe practices that will be used throughout the project to minimise the number of animals used consistent with scientific objectives. Those practices may include e.g. pilot studies, computer modelling, sharing of tissue and reuse.	The number of study animals has been calculated to make sure that as few animals as possible are exposed to the procedures.
3. Refinement	Animals will be under anaesthesia throughout the procedure and euthanised without recovery.



were determined. Describe steps that have been taken to reduce the number of animals to be used, and principles used to design studies. Where applicable, describe practices that will be used throughout the project to minimise the number of animals used consistent with scientific objectives. Those practices may include e.g. pilot studies, computer modelling, sharing of tissue and reuse.	allow students to demonstrate successful competence in performing procedures without jeopardising the animals' welfare will be used. Where possible multiple mild interventions will be performed in the same animals to reduce the total number of cattle required.
3. Refinement Give examples of the specific measures (e.g., increased monitoring, post-operative care, pain management, training of animals) to be taken, in relation to the procedures, to minimise welfare costs (harms) to the animals. Describe the mechanisms to take up emerging refinement techniques during the lifetime of the project.	Interventions will be carried out under close supervision of a trained and experienced veterinarian who will provide veterinary assistance and advice should any animal welfare issues arise. For some procedures, epidural anaesthesia or sedation will be used as appropriate in order to avoid the animal feeling any discomfort. Animals will be monitored closely for any signs of adverse effects post interventions. Veterinary educators will perform regular literature reviews and consult 3Rs resources in order to keep up-to-date with emerging refinement opportunities that could be applied to this project.
Explain the choice of species and the related life stages.	Cattle have been chosen for use, as they are the target species in which the students need to train. Calves and adult cattle will be used, as training is required in both of these life stages.

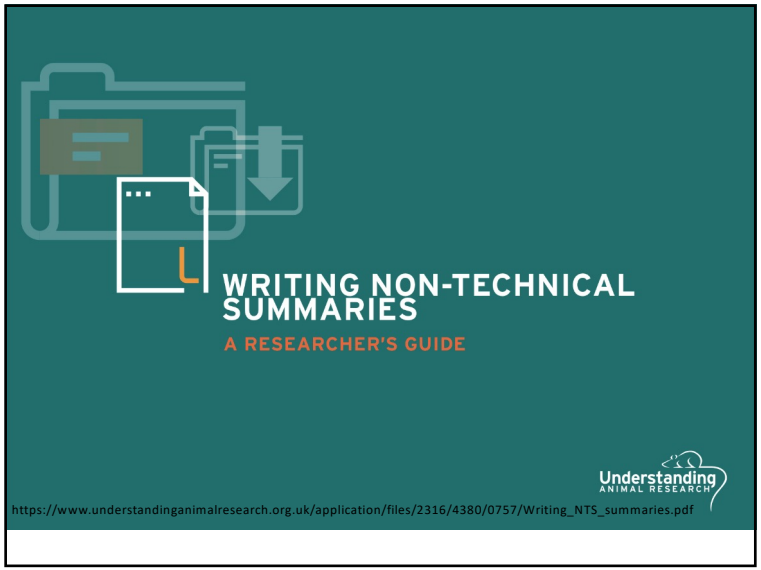
Give examples of the specific measures (e.g., increased monitoring, post-operative care, pain management, training of animals) to be taken, in relation to the procedures, to minimise welfare costs (harms) to the animals. Describe the mechanisms to take up emerging refinement techniques during the lifetime of the project.	
Explain the choice of species and the related life stages.	N/A

Project selected for Retrospective Assessment[7]	Deadline	Contains severe procedures	Uses non-human primates	Other reason



https://webgate.ec.europa.eu/envdataportal/web/resources/alures/submission/nts/list

27



28

ABOUT THIS GUIDE

This guidance is intended to support researchers who are writing a Non-Technical Summary (NTS) as part of an application for a project licence application under the Animals (Scientific Procedures) Act (ASPA). It may also be helpful for Animal Welfare, Ethical Review Body (AWERB) members, particularly those attending in a lay or independent capacity, as it refers to what can be expected of a well written NTS.

The aim is to help you to write a good summary and to understand where you might need additional help or information.

The NTS is a public and legally required part of your licence application. It is your opportunity to explain your project to lay people beyond your institution and scientific community.

THE PURPOSE OF THE NON-TECHNICAL SUMMARY

The NTS is an integral part of the application and should not be an after-thought. The NTS may be the last part of the project licence application that you write, but it will usually be the first (and perhaps only) section that many others read.

A well-written NTS improves openness around the use of animals in research. It can support the sharing of good practice in the 3Rs and will make your work more transparent and accessible to external people such as Members of Parliament (MPs), Non-Governmental Organisations (NGOs) or the public.

The NTS should be a concise account of your project licence that gives sufficient detail for the reader to understand why and how the work is being undertaken, including how the Replacement, Reduction and Refinement (3Rs) will be implemented. It should be of publishable quality, and able to stand alone. It will usually be the first part of the licence read by your AWERB, and will be published openly on the Home Office website.

It is your responsibility as the project licence holder to ensure your NTS does not contain identifying information or other sensitive information such as intellectual property.[1]

[1] http://ec.europa.eu/environment/chemicals/lab_animals/pdf/Recommendations%20for%20NTS.pdf

29

NTS STYLE: SUMMARISING FOR A LAY AUDIENCE

If I Had More Time, I Would Have Written a Shorter Letter Blaise Pascal (though often attributed to Mark Twain)

Summarising complex and technical information in lay terms is a skilled task, and you are strongly advised to seek support from your communications team in writing the NTS. If a science or research communicator is represented on your AWERB they may be able to work with you on project summaries. If this is not possible, try to write the NTS at a different time to the rest of the licence. It is very difficult to change tone and technical level when writing, and taking time to draft it separately will help you to adapt your style. You should ask non-researchers to check the language used, and your AWERB lay-member should be able to provide valuable advice on your NTS.

The summary should be concise. The word limit is normally 1,000 words. Some programmes of work (such as those containing only mild or unclassified procedures) may require less detail than those likely to result in additional societal concerns. The audience for the NTS is 'the general public', and you should therefore assume a reading age of 12.

When the AWERB read your project licence the lay-person should expect to fully understand the summary, which will provide:

- A description of the project of work
- The objectives of the programme
- The predicted harms and benefits of the programme
- The numbers and types of animals to be used
- Evidence that the programme of work has considered and complies with the 3Rs

The style of an NTS should be clear and straightforward, using jargon-free language e.g. "under the skin" rather than "subcutaneous"; "brain cell" or "nerve" rather than "neuron". But remember that most of us are so familiar with jargon that we do not know we use it, so ask lay-people whether they understand your terminology.

Writing plainly when you are used to writing for a technical audience can be harder than you think, but here are some brief guidelines:

- Stop and think before you start writing. Summarise the key components of the project, making a note of the points you want to make, meeting the requirements for NTS content.[2]
- Provide a balanced view of the project's potential benefits and of the expected harms to the animals, summarising the detail in a full project licence application.
- Prefer short words where possible.
- Use every-day words whenever you can. Avoid jargon and acronyms, explaining any technical terms you have to use.
- Sentences should be short; down to an average of 15 to 20 words. Try to keep to one main idea in a sentence.
- Use active verbs as much as possible. Say 'the mouse may feel discomfort' rather than 'discomfort may be felt by the mouse'. This can be particularly challenging for scientists, who are more used to writing in passive voice.

[2] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/670770/Annotated_PPL_v2.0_171121.pdf

30

THE NTS: TOP 10 COMMON MISTAKES

1) OMITTING THE MAIN IDEA BEHIND THE WORK
Include the purpose of the work in the aims and objectives section. Explain what in particular you expect this project will tell you that you didn't know before.

2) BEING TOO VAGUE ABOUT WHAT ANIMALS WILL EXPERIENCE
Be specific about what may happen, and the steps that will be taken to avoid or reduce any harms to the animals. Making general statements like 'suffering will be minimised' or 'animal welfare is a priority' for example, is not sufficient. Think about the animals' perspective and be honest about the nature and level of potential harms they might experience. Show why the approach taken is the most refined way to meet the project's objectives.

3) ASSUMING THE READER UNDERSTANDS YOUR RESEARCH AREA
The summary must be easily understood by a non-specialist who is unfamiliar with your previous work. Would a family member or neighbour understand what you have written?

4) WRITING IN ACADEMIC LANGUAGE AND STYLE
Assume a reading age of 12 (which is the usual level of lay public) and keep sentences short. Avoid or explain technical terms.

5) LEAVING OUT IMPORTANT DETAILS
Explain the choice of species and model, where relevant. Include the types of procedures that will be undertaken, their frequency, duration and the severity level.

6) OVERSTATING THE POTENTIAL BENEFITS
Avoid making broad, high level claims about what the project will achieve (e.g. 'lead to future cures for breast cancer') or just stating the importance of the research field generally (e.g. 'X number of people in the world suffer from Y'). If this research will lead to novel treatments what will they do? How will they help?

7) ASSUMING THE READER HAS READ THE FULL LICENCE APPLICATION
The NTS should be a stand-alone document that can be read by anyone to give them an understanding of the project.

8) SETTING ASIDE TOO LITTLE TIME TO WRITE A CLEAR SUMMARY
Many researchers write the NTS last, at the end of a long application process and with a pressing deadline. Creating a clear, concise summary takes time to draft and review. Some find it helpful to write the NTS first.

9) CUTTING AND PASTING FROM THE LICENCE APPLICATION
Text in the main application contains far more detail, scientific background and technical terms than should appear in the NTS. The NTS text should be a bespoke piece of writing. Review points 3 and 4.

10) CUTTING AND PASTING FROM THE PREVIOUS NTS
If it is a licence renewal, take the time to properly revise and update the NTS. The context of the research and the scope of the project may have changed significantly. Also, contemporary best practice regarding the 3Rs may be very different from a few years ago.

31

ESSENTIAL READING

The 'annotated project licence' produced by ASRU provides guidance and helpful tips on what should be included in the NTS:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/670717/Annotated_PPL_v2.0_171221.pdf

OTHER USEFUL REFERENCES

Guidance produced by the European Commission working group on Non Technical Summaries:
http://ec.europa.eu/environment/chemicals/lab_animals/pdf/Recommendations%20for%20NTS.pdf
Article by Taylor et al (2017) reviewing the quality of current NTSs and highlighting the need for improvement:
http://www.altex.ch/resources/Taylor_of_171129.pdf
The plain English guide to writing medical terminology, with useful tips and examples of rephrasing:
http://www.plainenglish.co.uk/medical-information.html

Understanding ANIMAL RESEARCH
www.understandinganimalresearch.org.uk

32

CONCLUSIONS

- The public has to know about animal research
- It is up to scientists and everyone who is involved on LAS to provide information
- Information has to be objective
- **Education on communication skills is necessary**
- The aim is to promote the beneficial character of our research and our Responsibility – **Not making campaign for animal research**

33

THANK YOU

34