Broadening the debate on Breeding: on the Ethical and Societal dimensions of innovations in livestock breeding

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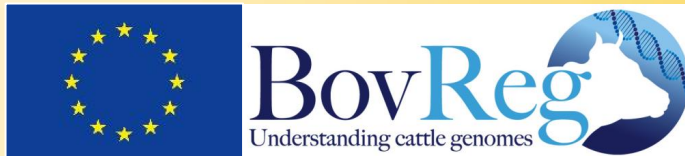Wageningen University | ASG | Adaptation Physiology

Outline

A. From "how and what" to "why and for whom": the importance to include socio-ethical dimensions

B. Broadening the debate on socio-ethical dimensions
1. More than experts
2. More than risks
3. More than animal welfare
4. More than reflection on new issues

BovReg
Understanding cattle genomes

NWO

Just Editing? A Comparative Responsible Innovation Approach to Animal Genome Editing

From "how and what" to "why and for whom"

Without expertise in fields such as biology, veterinary and data sciences, innovations in animal breeding are not possible.

However, innovations in animal breeding are more than technical challenges.

It raises normative questions:
- What is desirable?
- What is good?
- What is right/ justified?

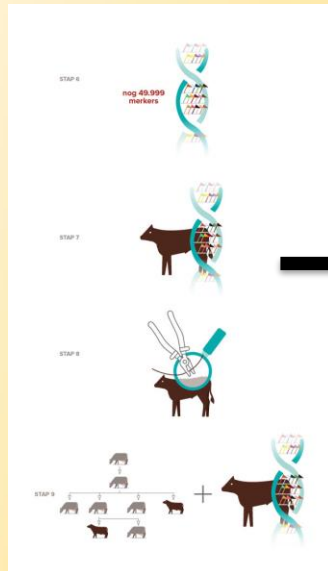# From "how and what" to "why and for whom"

Where do these questions come from?

- **Breeding** is goal directed → What do we aim for and why is that valuable? what is the preferred direction?

- **Technology** is not neutral → (how) should it be used?, Who are allowed to use it? What is the impact in terms of power, responsibility. How to deal with uncertainty?

- **Animals** → what is the value of animals? Do we have duties towards animals? Are we allowed to change animals?

Answers are never neutral but embedded in views on what is desirable/ valuable.

From "how and what" to "why and for whom"

The ethical and societal dimensions of innovations in livestock breeding often are perceived/ discussed as an add-on……

Attention to ethics = part of implementation and creating acceptance

From "how and what" to "why and for whom"

The ethical and societal dimensions of innovations in livestock breeding needs to be included from start of the innovation process.

Attention to ethics

Broadening the debate on socio-ethical dimensions

1. More than experts

Experts are essential to discuss the socio-ethical dimensions of new technologies in livestock breeding. This includes experts in breeding-related disciplines + social science and ethics.

However, experts are not enough! Public engagement is essential. Only engaging with technical experts on gene-editing livestock risks 'omitting the true breadth of these issues by limiting our perspective to dominant perspectives' (Kayumova et al., 2019: 223).

Broadening the debate on socio-ethical dimensions

Democs game (H2020 BovReg, D. Bruce)

Focus Group Discussions (NWO Just Editing project, Middelveld, Macnaghten)

Broadening the debate on socio-ethical dimensions

2. More than risks

The dominant institutional debate on innovations in animal breeding has been framed in terms of measurable risks.

This suggests as if the public issues surrounding new technologies in breeding can be reduced to specific harms to health and the environment as explicable by case-by-case scientific risk assessment.

This frame is poorly equipped to think through the broad set of questions that are relevant in the context of animal breeding.

Broadening the debate on socio-ethical dimensions

Story Card 7

Hermann Anderegg : Alpine Cattle Farmer

Genomics Selection to support local breeds: **tradition, region, independence**
(H2020 BovReg, D. Bruce)

Can concerns be explained by reference to background assumptions?

- Moral status of the planet, animals and humans

- Moral view on Perfection

- Acceptability of farming and breeding practices, current and alternative

- Acceptability of genetic enhancement as such

Background assumptions play central role in evaluation of gene-editing
(NWO Just Editing project, with Middelveld, Macnaghten)

Broadening the debate on socio-ethical dimensions

3. More than animal welfare

The animal makes a difference: additional questions and concerns in comparison to plant breeding.

Animals are recognized as sentient beings: they have interests that have to be considered in the breeding process.

Mostly this is taken on board in terms of attention to **animal welfare**.

Despite the importance of animal welfare, the animal related question **cannot be reduced to welfare**.

Broadening the debate on socio-ethical dimensions

"Several authors argued that (applications of) genome editing are undesirable not because they might harm the welfare of these animals, but because they might be **harmed in other ways**." (De Graeff et al 2019)

"The potential to change the nature of animals, sometimes referred to as '**de-animalisation**', i.e. to add or remove certain capacities from animals (such as cognitive capacities or the ability to feel pain), is of ethical concern." (EGE, 2021 Ethics of Genome Editing)

"...even if breeding technologies do improve animal welfare, they might be objected to on other ethical grounds (..). The current paper applies the **concept of telos**, (…), to genomic selection and genome editing aimed at improving animal welfare." (Kramer & Meijboom, 2021)

Broadening the debate on socio-ethical dimensions

4. It's about more than new questions: the <u>meaning</u> of "new"

Researchers in interviews on gene-editing: this is not new, a lot of continuity with existing technology → does not raise moral concerns

Members of the public in focus group discussions on gene-editing: this is not new, a lot of continuity with how companies already manipulate animals → does raise moral concerns

Broadening the debate on socio-ethical dimensions

4. It's about more than new questions: the *relevance* on "new"

In the project on Genomics selection, it seems that not that many new ethical concerns arise → morally neutral?

Ethical reflection it is not only about new topics
a. The pace of the development, unclarity about responsibilities or uncertainties can raise relevant (but well-known) questions that need attention
b. New technologies can make existing concerns explicit: e.g., instrumentalization of animals, questions about ownership of genetic material.

Broadening the debate on socio-ethical dimensions

From: Kramer & Meijboom. 2021, BovReg
Figure 2: ethically relevant concepts and questions with respect to genomic selection
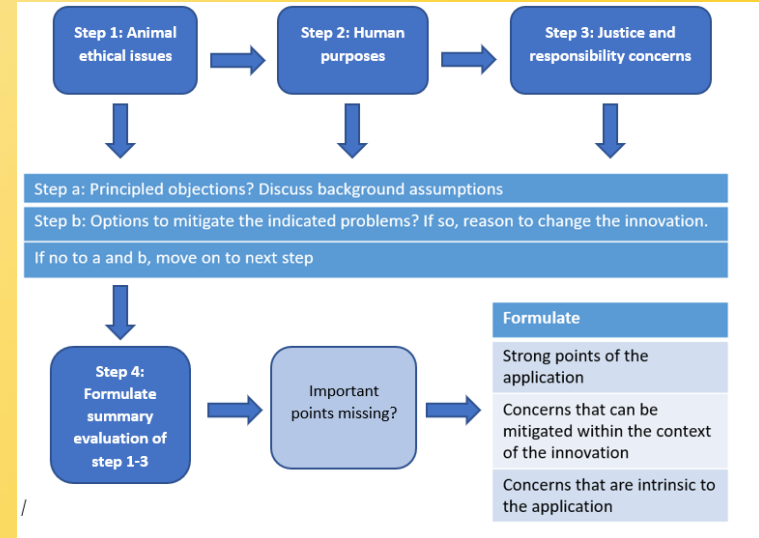
Part of concept Framework for gene-editing NWO Just Editing project, with Middelveld, Macnaghten

Broadening the debate....

Will not
- make the discussion easier
- automatically lead to answer, but

Can do justice to
- the complexity at stake
- views of all involved in livestock breeding

Enable professionals to act in a responsible way, i.e., enable to answer (societal) question about both what you are doing and why!

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Just Editing? A Comparative Responsible Innovation Approach to Animal Genome Editing

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