New animal welfare scoring system could enable better-informed food and farming choices

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Researcher Harriet Bartlett assesses pigs on a farm. Credit: University of Cambridge

Cambridge University scientists have come up with a system of measuring animal welfare that enables reliable comparison across different types of pig farming.

This means that animal welfare can now, for the first time, be properly considered alongside other impacts of farming to help identify which farming systems are best.

This is vital for improving animal welfare in livestock production, at a

time when demand for meat is rising globally and the way animals are farmed is changing—with concerns about the welfare of intensive and indoor systems.

Animal welfare assessments could also enable consumers to be better informed when choosing what to eat.

Britain has various labeling schemes for meat products to assure consumers that certain standards have been met. The team used their new system to test how the different labels compare in terms of animal welfare.

Farms producing "woodland" labeled pork products scored best for pig welfare, followed by "organic," then free-range, RSPCA assured, Red Tractor, and finally those with no certification.

"We have shown that it's possible to reliably assess animal welfare on farms. This means decisions about which types of farm are better or worse for animal welfare can be based on proper calculations, rather than assumptions—as is currently the case," said Dr. Harriet Bartlett, first author of the study, who carried out this work while a researcher at the University of Cambridge's Department of Veterinary Medicine. She is now a Research Associate in Sustainable Food Solutions at the University of Oxford.

Bartlett added, "Now animal welfare can be included in overall assessments of farm sustainability alongside other measures like carbon emissions and biodiversity impacts, so we can make better informed decisions about how we choose to farm and what we choose to eat."

Pigs on a farm in the study. Credit: Harriet Bartlett

Coming up with an overall measurement of animal welfare has previously been difficult because of disagreement on which factors are most important. For example, is a health problem more important than a behavior problem? What level of welfare is good enough?

The new system assesses the quality of an animal's life through a wide-ranging set of welfare measurements, reflecting a range of concerns about welfare. The results can be integrated into a single score to enable comparison across farms.

This will enable exploration of trade-offs between animal welfare and other issues of concern to consumers, such as the impact of farming on the environment.

The results are published today in the journal *Proceedings of the Royal Society B*.

Assessment of the pigs looked at everything from health problems like coughing, sneezing, and lameness, to the way they interacted: biting each other's ears or tails, or engaging with their environment, for example.

Various scoring methods were tested—giving more or less weight to the different aspects of animal welfare—on 74 pig farming systems in the U.K. The team were surprised to find that each method gave broadly the same overall result in terms of which farms, and types of farms, performed best and worst.

Harriet Bartlett loves working with pigs, but says she is sometimes outsmarted by them. Credit: University of Cambridge

"Despite ongoing debate about how to measure animal welfare, we found we can identify which types of farms we might want to encourage and which we shouldn't with reasonable consistency," said Professor Andrew Balmford in the University of Cambridge's Department of Zoology, who was involved in the study.

The new welfare measurements combine quality of life with length of life, and scores can be produced 'per unit' of production. The welfare scores can also allow several farms to be grouped together—for example when animals are kept on different farms at different growth stages.

"This work opens up possibilities for greater rolling out of welfare assessment scores in food labeling, including in other species as well as pigs. Until now, the methods available have made this impractical," said Professor James Wood at the University of Cambridge's Department of Veterinary Medicine, who was involved in the study.

The technique of life cycle assessment is widely used to quantify environmental impacts, such as greenhouse gas emissions and land use, across all stages of farm animal production. But until now there hasn't been a way of measuring animal welfare that enables valid comparisons across different farming systems, so life cycle assessments do not include it and as a result, welfare concerns have sometimes been overlooked.

Food production accounts for over a quarter of all global greenhouse gas emissions. Making farming systems more sustainable, in the face of

growing global demand for meat, is a major challenge for farmers and the government.

"Woodland"-labeled pork is from farms that provide at least partial tree cover for the pigs, and "Organic" provides outdoor access for the animals. The "RSPCA assured" label is welfare focused, while "Free range" is not a formal assurance, but typically refers to fully outdoor farming systems. Most U.K. pig farms produce "Red Tractor" labeled pork, which has lower production costs—translating to a lower price for consumers.

More information: Advancing the quantitative characterisation of farm animal welfare, *Proceedings of the Royal Society B: Biological Sciences* (2023). DOI: 10.1098/rspb.2023.0120. royalsocietypublishing.org/doi … .1098/rspb.2023.0120

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