

WHAT IF WE IMPROVED ANIMAL WELL-BEING IN AGRICULTURE?



Animal rights would come to mean more

Solution: Hornless cows and sterile pigs to avoid manual dehorning and pig castration.

Did you know?

The EU has some of the world's highest animal welfare standards. New breeding techniques can improve animal welfare and help raise those standards even higher.

The people benefiting from the solution:

"Animal breeders aim to improve animal health and welfare just as much as better use of resources or quality of animals. For this, they need new tools such as genome editing, used in a safe and smart way, to help both animals and farmers lead better lives."

Ana Granados,
European Forum of Farm
Animal Breeders

With the help of genome editing we could improve animal health and the welfare of our farm animals. Today, dairy calves are dehorned in an expensive and not painless process for the safety of both the animals and the farmers. But it doesn't have to be this way. In beef cattle, hornlessness (also known as polled) is a common trait and, in theory, dairy cattle could be bred to be polled too. Unfortunately, the conventional breeding process would take decades, compromising other traits linked to milk production and animal health in the process. In pig farming, male piglets are castrated to prevent their meat from getting the unpleasant odour and taste that arises from boar taint, a property of meat from uncastrated boars. The castration is a surgical act that farmers prefer to avoid.

Genome editing can help to better prevent both examples to improve animal welfare and health. Bio-engineering company Recombinetics used a precision breeding tool called TALEN to introduce the hornlessness trait to dairy cows and to develop naturally castrated piglets. The genome editing techniques used by Recombinetics allow scientists to change individual letters of the genetic code with high precision, essentially having the same outcome as conventional breeding with spontaneously arising mutations, only much more efficiently.

Another promising avenue of research opened by genome editing, and one where conventional breeding is less successful, is animal disease resistance. Already, scientists could edit poultry to be resistant to avian influenza and pigs resistant to African swine fever and porcine respiratory and reproductive syndrome (PRRS). All of them diseases affecting poultry and pig health and welfare, while also impacting farmers' livelihoods.

Genome editing is

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