

Detecting disease in cows with passport photos

Like a human face, a cow's face speaks volumes. But can you read those 'volumes'? Can you detect disease in a cow's facial features? And can you teach a computer that skill? Yes you can, according to research conducted by Ronald Petie together with students from the HAS and Avans universities of applied sciences in Den Bosch.

The dreaded bovine foot-and-mouth disease (FMD) was taken as proof-of-principle. Wageningen Bioveterinary Research, where Petie works, does research into the effectiveness of vaccines against FMD. Petie took several photos of the faces of the heifers used in those trials: some before and some while they were infected with the disease. Then the students set to work on

that material.

They scored the photos on nine selected characteristics, ranging from watery eyes, sniffing and drooling, to the position of the ears and any wounds or skin abnormalities. The computer was then trained to pick up these signals from a photo and assign a value to them. After some calculations, a verdict was reached as to whether the cow was sick.

Early detection

The computer is not as good as a human. But the program does come close, Petie says. The computer picks out 94 out of 100 sick cows. 'For tracking trends, that is adequate. You may miss a few cases, but you do measure changes in disease symptoms. That is useful for an early-warning system in our trials.'

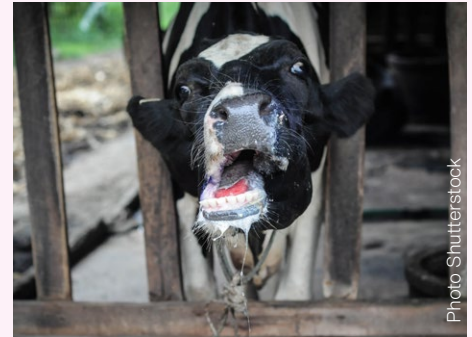


Photo Shutterstock

According to the researcher, the program is still in its infancy. Improvements could be made by, for example, adding more indicators of the presence of disease. And video footage could be used in addition to photographs. But direct application on the farm is still just a future possibility. RK