PigInspector (CLK GmbH):

Camera system for automated detection of skin lesions, tail and ear necrosis and measurement of tail length on pig carcasses

aWISH
ANIMAL WELFARE INDICATORS AT THE SLAUGHTERHOUSE

TASK

The PigInspector inspects every pig carcass on the slaughter line after scalding and singeing. Each finding is linked to the slaughter number and can be fed back to the farm of origin. The findings show signs of tail biting, tail docking and injuries from fighting, handling or transport.
Functions: tail length, tail and ear necrosis, skin lesions, tattoo stamps and slaughter number.

ASSESSMENT

- Tail and ear necrosis (TRL 9): in commercial use since 2018, upgraded within aWISH to new AI models. Ear necrosis no longer needs a 3D camera.
- Tail length (TRL 9): measured in centimetres with a 3D camera. Validated by Vetmeduni Vienna: tails were detected with 98 % precision, and the mean error was 1.6 cm. Each new site needs its own camera setup and calibration.
- Tattoo stamps and slaughter number (TRL 9): stamps are counted and the slaughter number is read automatically.
- Skin lesions (in development, TRL 7): scratches are detected as one class with their number, length and position. To our knowledge, no scientific scheme yet scores such data. Type and cause of a scratch depend strongly on expert opinion, so it is not always clear when and where it occurred.
- Pilots: two commercial slaughterhouses in the Netherlands and Austria (aWISH pilots 1 and 5) with 1,000 to 4,000 pigs per day. Results go to the aWISH data platform and can be stored long-term in a database provided by the slaughterhouse.
- Requirements: a steam-free position after singeing, carcasses that do not rotate, enough height above the tail root for the 3D camera and daily cleaning of the camera windows.

Contact : schulte-landwehr@clkgmbh.de



Fig.1 - 3D point cloud of a pig tail with its fitted centerline (Pfeiffer et al., submitted)

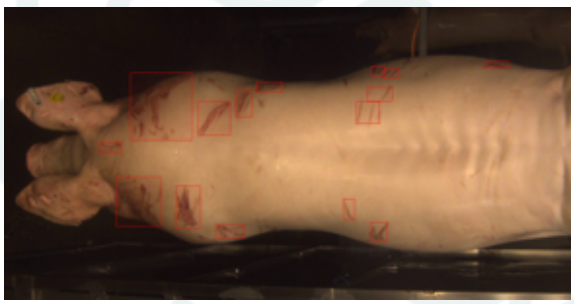


Fig.2 – Scratches found on the back of a carcass (red boxes)

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