Development of a rapid and simple approach for kid carcass evaluation by video image analysis

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Background

Traditionally, carcass evaluation requires an experienced evaluator at the slaughter house.

Carcass evaluation by video image analysis is already ongoing for cows, pigs and sheep.
Flaws

The equipment required is usually very expensive.

Kid carcass evaluation by video image analysis is not developed yet.
Aim

Evaluate the potential of a simple and cost-effective video image analysis system to evaluate kid carcasses in small slaughter units
Material

42 kid carcasses (6.6 ± 2.6 kg)
Digital camera (Sony, DCR-TRV460)
Non-glare black surface
Standard light
Methods

Carcasses hanged on the gambrel against a non-glare black surface

Standard lightened

The camera at a fixed distance and perpendicular to the long axis of the carcass
Methods

An image of the dorsal and lateral view of each carcass was obtained.

44 measurements (linear and area) were obtained after carcass image analysis with the ImageJ 1.39j software.
Linear measures taken on the lateral view of the carcass
Area measures taken on the lateral view of the carcass
Linear measures taken on the dorsal view of the carcass
Area measures taken on the dorsal view of the carcass
Methods

Carcasses were dissected into:
- muscle
- subcutaneous fat
- intermuscular fat
- bone
Methods

Stepwise regression analyses (SAS Cary, NC) were performed to predict carcass composition from carcass weight and carcass measurements.
Results

Muscle
6 measures $R^2 = 0.96$ $P<0.01$
Results

Subcutaneous fat
2 measures  $R^2 = 0.45$  $P<0.01$
Results

Intermuscular fat
6 measures  \( R^2 = 0.92 \)  P<0.01
Results

Bone

3 measures  \( R^2 = 0.95 \)  \( P<0.01 \)
conclusions

This approach to video image analysis has potential to predict kid carcass composition at a low cost.
further research

Improve this method to be able to use it to classify kid carcasses in current market conditions