



Vision based classification and payment of broilers

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Introduction

Presently, Danish broilers are paid by live weight of the animals on the transport truck. This gives an imprecise estimation of the live weight since varying amounts of litter, manure, water, snow etc. may be included. Furthermore, the value of the chickens depends not only on the weight but also on the quality. Especially the slaughter yield and the meat content are of value. These quality parameters are highly affected by primary production factors like the composition of the feed. In order to obtain more valuable products, the broiler industry wishes to use a payment system that encourages the farmers to use production methods that will result in chickens with more meat and less fat and thus more value.

This study has looked at the possibilities of a new classification system for broilers on which the payment can be based. To overcome the inadequacies of live weight, an estimation of the slaughter weight and the total breast fillet content was chosen for the new classification system. The breast fillet is the most valuable part for the Danish slaughterhouses. Because of the high slaughter speed (approx. 12,000 per hour) vision technology was chosen.

Materials and Methods



... classification equations calculated based on measurements and reference cutting for

- Slaughter weight
- Total fillet weight
- Total fillet yield

Results

Table 1 Classification equations Bias and precision for the two slaughterhouses and combined

Slaughterhouse	A	B	Both
Carcass weight (gram)	+1.8 ±155	-3.6 ±121	0 ±140
Total fillet weight (gram)	+2.4 ±78	-4.9 ±74	0 ±76
Total fillet yield (%)	+0.11 ±1.3	-0.04 ±1.5	0 ±2.76

None of the biases are statistically significant (t-test, all p > 0.1).

Conclusion

The classification is not very precise for the individual animal but very precise for flocks of many thousands.

$$Precision_{flock} = \pm 2 \times \sqrt{\frac{STD_{flock}^2}{N} + \frac{RMSED_{chicken}^2}{N}}$$