Session: P4.17

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Drip Loss of Case-Ready Meat

and its Associations with Earlier Measurements at Slaughterhouse and with Genetic Markers

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A) Introduction

Drip loss as a meat quality trait for pork is of substantial economic importance. Meat showing high amounts of drip has an unattractive appearance and leads to loss of sales in the retail store. Furthermore, high drip loss or low water-holding capacity limits the yield of further processing. Due to these reasons drip loss is a main topic within breeding for meat quality.

B) Materials and methods

Case-ready meat (CRM; Fig. 1) cut from the *M. longissimus dorsi* of 374 pigs was measured for drip loss during each of 7 days (CRM_{1-7}) after packing at 24h post-mortem. The associations with earlier drip loss measurements at slaughterhouse using bag method (BM), EZ-DripLoss method (EZ-DL) and with genetic markers were analysed.

Figure 1: Meat sample packed in a tray (CRM)

C) Means and correlations

At slaughterhouse, samples taken 24h post-mortem showed drip loss of 1.8 and 3.11% using BM after 24 and 48h of storage and 4.71% using EZ-DL after 48h storage. Consecutive measurements using BM showed a large correlation (0.98) and were highly correlated with EZ-DL (0.89). Mean drip loss of CRM increased substantially from 1.57 to 5.64% during 7 days. Correlations between drip loss using CRM_{1-7} and those using BM or EZ-DL were large in a range of 0.82 to 0.90, indicating that earlier measurements at slaughterhouse were highly informative.

D) Drip loss development

Increasing display times of meat in retail shops require meat of consistently good quality. Therefore, the development of drip loss was examined during one week (Fig. 2).

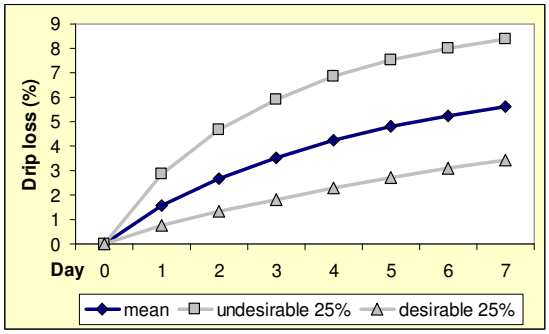

Figure 2: Development of drip loss within a week

High variation was obtained in the development of drip loss (Fig. 2) so that 25% of the samples with undesirable high drip loss obtained a mean of 8.36% drip on day 7, whereas the 25% better performing samples showed only 3.45% drip loss. The samples having undesirable drip loss had especially high amounts of drip within the first days of the observation period.

E) Genetic markers

An association study was conducted using data of the present trial and a previous study. Altogether information about EZ-DL was available for 1155 animals.

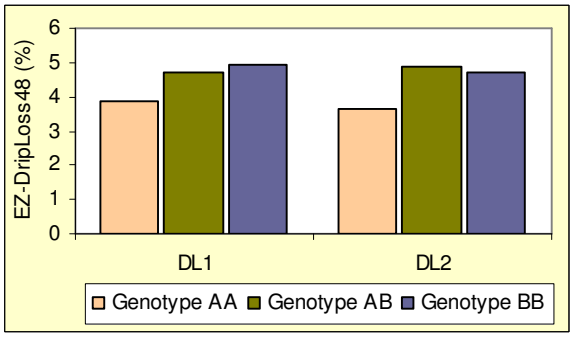

Figure 3: Marker effects on drip loss

In addition to the *RYR1* gene, two other genetic markers were found to significantly influence drip loss as measured using EZ-DL. The difference between the AA and BB genotype of the markers DL1 and DL2 was 1.03% and 1.09% drip loss (Fig. 3). This indicates the usefulness of marker-assisted selection for reduction of drip loss in pigs.

F) Conclusions

Measurements of drip loss using BM and EZ-DL early post-mortem are adequate to predict drip loss in self service trays over one week. The EZ-DripLoss method is a standardised easy-to-perform method and is therefore recommended for use in selection programs. Finally, marker-assisted selection is shown to be a powerful tool for reducing drip loss.

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