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Perugia, June 13-16, 2017

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Thursday June 15th - Room T1

Animal welfare, health and behaviour - Pig health and behaviour

Chairmen: Carolina Pugliese, Giovanna Martelli
15.45-16.00 Silvia Parrini, Anna Acciaioli, Valentina Becciolini, Gustavo Campodoni, Oreste Franci

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Nutrition and feeding - Feed evaluation

Chairmen: Paolo Bani, Pier Paolo Danieli
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Effects of rumen fluid pH on rumen activity and quality and technological properties of milk .............................................................. 0111

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antioxidant capacity showed a similar trend to polyphenolic content after physiological extraction. The results obtained in this study indicate that AFW and by-products could be considered a promising bioaccessible source of antioxidants and phenolic compounds with industrial applications for the production of ingredients to functionalize feedstuffs for monogastric animal.

Acknowledgements

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The effect of duration of storage and storage method on chemical composition and in vitro digestibility of complete calf pellet

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An experiment was conducted to determine the effect of duration of storage and method of storage on the quality of complete calf starter pellet. Pelletting was done in order to facilitate the handling, storage, transport, and to improve the efficiency and palatability of feed. The calf starter ingredients were yellow corn (50%), soybean meal (24.5%), rice bran (25%), and premix (0.5%). The calf starter (65%) was then mixed with chopped corn straw (35%), and pelleted using expired milk powder as pellet binder to form a complete calf starter diet. Samples of the complete diet were stored in sealed polyethylene plastic bags, fibre sacks or plastic silos, and kept for either 0, 2 or 4 months before they were opened and analysed for proximate chemical composition, dry matter (DM), organic matter (OM), crude protein, ether extract, crude fibre and in vitro digestibility. The data were analyzed using a two-way ANOVA based on a 3 x 3 factorial design. Statistical analysis of the data showed significant differences only for duration of storage effect (p < .05). The DM of complete calf pellet on 0, 2, 4 months of storage were 87.94%, 89.20%, 89.36%. The DM and OM digestibilities of complete calf pellet at 0, 2, 4 months of storage were 68.50%, 66.31%, 66.94% and 69.09%, 66.67%, 66.39%, respectively. The proximate composition, DM and OM digestibility were not significantly different (p > .05) on main effect of storage method. It can be concluded that the chemical composition of complete calf pellet increased from 0 to 2 months of storage, while the digestibility of complete calf pellet decreased. The methods of storage (polyethylene plastic bag, fibre sacks, and plastic silo) had no effect on the quality of the complete calf pellet for at least 4 months storage.

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Effects of rumen fluid pH on rumen activity and quality and technological properties of milk

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Excess fermentation and accumulation of short chain fatty acids (SCFA) in the rumen is a frequent result of feeding dairy cows with high-grain diets. This allows to sustain increasing milk yield but has risen the risk of rumen acidosis. This study investigated the effects of rumen pH on milk composition traits, coagulation properties, cheese yield, and rumination activity (RA) of dairy cows. Rumen fluid samples were taken through rumenocentesis from 100 Holstein Friesian cows (5 to 75 days in milk - DIM) without clinical signs of disease kept in 2 herds, to determine pH and concentration of SCFA. Within the day of rumenocentesis individual milk samples were also taken from each cow. Further, RA was monitored using a microphone-based monitoring system (Ruminact, Milklime) fitted on cows, to record the time spent ruminating from 2 days before to 2 days after rumenocentesis. Data were analyzed using a linear mixed model including the fixed effects of parity and DIM class, the quartile of rumen fluid pH (QpH) and the random effect of herd-test date and also of cow when repeated observations per cow were analyzed. Rumen pH (5.98 ± 0.37) averaged 5.52 to 6.46 in the first to fourth quartile, respectively, with 32% of cows with rumen pH < 5.8. The concentration (mmol/l) of total ruminal SCFA and the proportion (%) of propionic acid on rumen fluid linearly increased (p < .05) as rumen pH declined, whereas that of acetic acid linearly decreased. Whereas the average time spent ruminating during the day was similar in cows of different QpH (on average 26%, but with a clear circadian variation), the circadian rumination pattern was influenced by rumen fluid pH, and the RA linearly increased (p < .05) in the daily interval 06:00 to 12:00 as rumen pH declined. Cows of different QpH did not differentiate for body condition score and test day milk yield (36.6 ± 8.0 kg/d). Likewise, QpH did not affect (p < .05) milk pH, somatic cell count (SCC), fat, protein, lactose and casein milk content.

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This is to certify that

Andriyani Astuti

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