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Book of Abstracts

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ASPA 24th Congress Book of Abstract

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Padova, September 21-24, 2021

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milk contamination and increasing the risk of late blowing defect in cheese. A survey on silage facilities and their management practices was carried out during the summer months in 108 farms of the left Po Valley, to study the relationships with ANSB spore content of silages and TMR samples. Descriptive statistics, simple correlations, and linear regressions were calculated among structural, management, and microbiological items at silo as well as at farm level. The high variability in ANSB in the different silages as well as in the other feeds, within the adopted sampling procedure, does not explain the ANSB content in TMR, confirming that the microbiology of this mixture is strongly affected by critical contamination from spoiled peripheral areas of the silos. The distribution of ANSB values has a wider range for bunkers than for bags stored silages, suggesting a higher variability in the factors affecting their microbiological quality. Bunker silos older than 16 years were more prone than recently built silos toward higher ANSB spore values. The unloading equipment affected the ANSB count; the front-end loader with cutter was associated with a lower ANSB, probably as a result of a reduced and compact surface left after the daily silage removal. Silo length and silo surface area daily removed were the main factors affecting spore contamination of silage during summer months: longer silo and wider surface removal were related to a reduced ANSB contamination, probably as a consequence of a reduced aerobic deterioration at silage surface. It has been found that the features of silage facilities and their management are an important first step to prevent the ANSB contamination chain at the farm level, namely by the reduction of silage face exposition to the aerobic spoilage effects.

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immune indicators through flow cytometry on blood and milk of ewes. Twenty-four Sarda dairy ewes were randomly allotted to three experimental groups fed basic diet (CON) and a supplement of 50 g (low dose group; LD), and 100 g (high dose group; HD) of CH/d per head for 5 weeks. Individual blood and milk samples were collected at the beginning, in the middle and at the end of the experimental period. Whole-blood samples were processed to purify peripheral blood mononuclear cells (PBMCs) by gradient concentration, using the density separation medium Histopaque-1077. PBMCs pellet was suspended in PBS for flow cytometry analysis. Individual post-dipping milk samples were collected weekly at morning milking by cleaning and sterility practices. Milk samples were prepared to flow cytometry by centrifugation and defatting. The cell pellet was re-suspended in PBS + EDTA buffer and stored at -80°C until flow cytometry analysis. A mix of antibodies was prepared to label PBMCs samples to determine Lymphocytes T-helper (CD4), T-Cytotoxic (CD8), T-activator (CD25), Macrophages (CD14), Natural Killer (CD56/16) and milk cell samples to determine Total T-Lymphocytes (CD3), Lymphocytes T-activator (CD25), and viability of cells/apoptosis by Hoechst 33258 (H58)/Caspase-3. CD4+ percentage tended to increase in LD than HD ewes ($p = .06$). No significant differences were found for other blood parameters. Diet affected milk parameters, for Caspase3+ percentage that was higher in HD group ($p < .05$) and H58+/Caspase-3+ percentage that was higher in LD ewes ($p < .01$). It seems that high dose of cocoa increased cell apoptosis, but low dose increased the early apoptosis of cells, so thanks, probably, to its antioxidant effect, to delay apoptosis. In conclusion, results suggest that the addition of CH as a supplement to the diet of sheep could exert positive effect at low dose, whereas high dose seems to affect negatively immune response.

P071

Flow cytometry study of blood and milk parameters in dairy ewes supplemented by cocoa husks

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Cocoa husks (CH), the principal by-product derived from *Theobroma cacao* (L.), could be used as a supplemental feed for animals. However, this use is constrained by the presence in the cocoa by-products of a natural alkaloid, theobromine which has been found to be toxic to animals when ingested in large amounts. The aim of this trial was to study the effects of CH on some

ANIMAL EFFICIENCY

P072

Long-term administration of calcium laurate to sows and piglets: effects on growth performance, fecal calprotectin and intestinal status of weaning piglets

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Newly weaned piglets are commonly exposed to nutrition, environmental and physiological stress that can negatively affect growth and health. Maternal nutrition may represent a valuable

strategy to benefit postnatal offspring development and decrease the susceptibility to diseases in adulthood. The aim of the study was to evaluate the effects of dietary lauric acid saponified with calcium (C12-Ca) given during late gestation to sows and piglets on offspring growth and intestinal health. At 3 weeks before parturition, 16 sows were randomly assigned to two dietary treatments: basal diet (CTR) or basal diet with 1 kg/ton C12-Ca (T). At weaning, 96 piglets were chosen from the litters and distributed in 4 post-weaning dietary treatments belonging to the same descent group: CTR-CTR and T-CTR fed basal diet, CTR-T and T-T fed basal diet plus C12-Ca (1 kg/ton). Body weight (BW), average daily gain (ADG), and average daily feed intake (ADFI) were measured and feed efficiency (FE) was calculated. Fecal samples were taken at 14 and 26 d to evaluate calprotectin (Calp) concentration as marker of gut inflammation. Piglets were slaughtered at 26 d and mucosa intestinal samples were collected and used to investigate the impact of C12-Ca on the total antioxidant capacity (TAOC) and secretory IgA concentration (SigA). Growth performances were analyzed applying a MIXED procedure for repeated measurements and accounting for the effects of treatment, time and their interaction. One-way ANOVA was used to analyze Calp, TAOC and SigA. The differences between means were compared using Tukey's test and considered statistically significant at $p < .05$. BW and FE were not affected by C12-Ca while ADG and ADFI resulted higher in CTR-T piglets ($p < .05$), although there was no significant effect of treatment x time interaction. Calp concentration was lower in T-CTR and T-T compared with the other groups ($p < .05$) after 14 d and no differences were observed at 26 d. SigA concentration in duodenum was lower in T-CTR and T-T compared to CTR-CTR and CTR-T group ($p < .05$) whereas no differences were observed for SigA in ileum and TAOC in both duodenal and ileum mucosa. Although the administration of C12-Ca soaps in the diet of the mothers did not show clear effects on the growth of the offspring, our findings suggest that the administration of C12-Ca soaps modulates intestinal inflammatory status during the first two weeks after weaning, improving gut health.

P073

Interaction between stearoyl-coenzyme A desaturase polymorphism and feeding system in affecting the fatty acid profile of sheep cheese

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Stearoyl-coenzyme A desaturase (SCD) catalyses the synthesis of monounsaturated fatty acids, by introducing a cis double bond at the delta 9–10 position. The study investigated the effects of a polymorphism at the ovine SCD gene and its interaction with the inclusion of fresh forage in the diet on cheese fatty acid (FA) composition in Valle del Belice ewes. A region of 527 bp of the ovine SCD gene including the partial sequence of the promoter, the complete sequence of the 5' UTR and exon 1 and the partial sequence of intron 1 were analyzed in order to identify the g.87C>A SNP located in the promoter region. A feeding trial was carried out using 16 Valle del Belice ewes selected on the basis of their genotype (6 CC and 10 AC). Each genetic group was fed, according to a latin square experimental design, with diets based on conserved or fresh forage, consisted of sulla hay (SH) or sulla green forage (SGF), integrated with 1 kg/d of concentrate feed. Cheese made from individual milk was analyzed for FA composition. The SCD genotype had no effect on cheese monounsaturated and polyunsaturated FA, whereas significantly influenced the desaturation activity, as demonstrated by the higher desaturation indices in the CC ewes compared to AC ewes (C14 index: 0.021 vs. 0.017; C18 index: 0.71 vs. 0.68; trans-vaccenic index: 0.38 vs. 0.32; $p < .05$). This result seems consistent with the possible role of this polymorphism on the enzyme desaturase synthesis and its activity in the mammary gland. However, this does not appear to be supported by the levels of monounsaturated FA or conjugated linoleic acid (CLA, C18:2c9t11) which were not affected by the g.87C>A polymorphism. The SGF diet significantly increased trans vaccenic, linoleic and CLA acids of cheese, compared to the SH diet (respectively: 2.30 vs. 1.31; 2.53 vs. 2.25; 1.00 vs. 0.80; $p < .05$). No significant interaction resulted, thus the effect of SCD genotype on desaturation indices was evident regardless of the diet. The results obtained, while showing an effect of SCD polymorphism on the level of desaturation, do not allow to highlight a role of the more favourable CC genotype in further improving the acidic composition of the cheese in health terms due to the presence of green forage in the diet. However, the genetic polymorphism of sheep SCD and its interaction with diet should be further investigated, given the lack of information on this species.

P074

Comparison of growth performance and whole body composition of two strains of Rainbow trout (*Oncorhynchus mykiss*) juveniles fed different diets

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