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good tolerance to a wide temperature range, while at 60 and 70 °C a statistically significant reduction of bacterial growth was observed ($p < .05$). Both species survived well to all the steps of the digestion process. The LiCl treatment strongly inhibited the adhesion ability of *L. reuteri* ($p < .001$), while it showed no significant effects for *L. plantarum* strain. Piglets supplemented with *Lactobacilli* significantly decreased the faecal score ($p < .0001$) during the experimental period. *L. plantarum* and *L. reuteri* revealed interesting functional proprieties and health-improving effects as functional feed additives for weaned piglets.

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O096

Effects of dietary metabolizable energy content on productive performance of turkeys

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Understanding the metabolizable energy requirements of modern turkeys is a crucial step toward sustainable intensification of poultry production. Therefore, this study was carried out to evaluate the effects of feeding diets with different metabolizable energy content on growth performance and slaughter yields of female turkeys. A total of 1620 BUT Big 6 turkey females were divided into two experimental groups (9 replicates each): CON group receiving a commercial basal diet formulated according to the current recommendations, and REC group fed the same diet with reduced energy content during the last three feeding phases of the rearing cycle (-75, -175 and -125 kcal/kg, respectively from 61 to 76 d, 77 to 89 d, and 90 to 104 d). Turkeys were weighed pen-wise at placement (0 d), at each diet switch (14, 34, 60, 76, 89 d), and slaughter (104 d). Similarly, feed consumption was determined at the end of each feeding phase, whereas mortality was recorded daily. Accordingly, productive traits such as daily weight gain (DWG) and feed conversion ratio (FCR) were calculated. At processing, slaughter yields were determined on a group basis. As expected, CON and REC turkeys presented similar body weight and feed consumption after 60 d of trial. Compared to CON, the REC group showed higher body weight at 76 d (6476 vs. 6418 g/bird, respectively; $p < .05$) as well as a tendency for higher DWG (126.9 vs. 123.9 g/bird/d, respectively; $p = .06$) and lower FCR (2.374 vs. 2.422, respectively; $p = .08$) from 61 to 76 d. Although no significant effect of the treatment was observed during the grower IV phase (77–89 d), REC turkeys reached

higher body weight at slaughter (104 d; 9598 vs. 9504 g/bird, respectively for REC and CON group; $p < .05$) and exhibited lower FCR during the finisher phase (90–104 d; 3.350 vs. 3.491, respectively for REC and CON group; $p < .05$). Considering the overall period of trial (0–104 d), the REC group showed higher DWG and lower FCR than the CON group (91.7 vs. 90.7 g/bird/d and 2.277 vs. 2.296, respectively; $p < .05$). Finally, CON and REC turkeys presented comparable carcass and breast meat yields (74.8 vs. 74.5% and 32.8 vs. 32.0%, respectively). In conclusion, the metabolizable energy content reduction tested in the present study allowed to improve growth performance and feed efficiency in female turkeys, highlighting the need for a more accurate estimation of the actual energy requirements of modern turkey hybrids.

O097

Effect of genotype and feeding plan on growth performance, slaughter results and meat quality of growing rabbits

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The present study evaluated the effects of the genotype and the feeding plan, on growth, slaughter results and meat quality of growing rabbits.

A total of 336 crossbred rabbits (184 Grimaud, G, and 184 Hyla, H) were divided into 8 experimental groups (42 animals/group) according to a tri-factorial design (2 genotypes × 2 digestible energy (DE) levels × 2 crude protein (CP) levels) and reared from weaning to slaughter (33–76 d of age). Animals were fed with 4 diets obtained by the combination of 2 DE levels (HE; high DE: 10.9 MJ/kg vs. LE; low DE: 9.2 MJ/kg) and 2 CP levels (HP; high CP: 15.9% vs. LP; low CP: 14.4%) during the post-weaning period (33–64 d of age) and then received a unique commercial fattening diet (10.7 MJ DE/kg, 15.0% CP) until slaughter.

Compared to H rabbits, G rabbits showed lower live weights (LW) at the beginning of the trial (914 vs. 967 g; $p < .001$), at 64 d of age (2537 vs. 2647 g; $p < .001$) and at the end of the trial (3073 vs. 3147 g; $p < .01$). In the whole trial, daily feed intake (DFI) was lower in G rabbits than in H rabbits (161 vs. 165 g/d; $p < .05$), whereas daily weight gain (DWG) and feed conversion ratio (FCR) were similar. At slaughter, G rabbits showed a lower full gut incidence than H rabbits (16.2 vs. 17.6%; $p < .001$), and a higher dressing out percentage (62.9 vs. 61.1%; $p < .001$). The

increase of dietary DE concentration decreased ($p < .001$) DFI (14%) and FCR (16%) in the post-weaning period. During fattening, the animals previously fed with LE diets showed higher DFI (+7%) and DWG (+15%), and improved FCR (5%) compared to those fed with HE diets ($p < .001$). In the whole trial period, HE diets reduced ($p < .001$) DFI (13%) and FCR (10%), without affecting the final LW. The reduction of dietary CP content did not affect growth performance and slaughter results. Meat quality traits (pH, colour indices and shear force) were not affected by the experimental factors.

In conclusion, the higher final LW reached by H rabbits may increase the profitability to the farmers, but the economic margin is reduced as compared to G rabbits due to the lower dressing-out percentage. The increase of dietary DE concentration is confirmed as a useful strategy to reduce feed costs and enhance the global efficiency of rabbit farms. The reduction of CP dietary content from 15.9% until 14.4% during post-weaning decreases the nitrogen excretion of rabbit farms and could reduce the feeding costs, depending on the market price of protein sources.

0098

Effects of different lipid sources and tannins on performances of high producing dairy cows

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It is well known that the degree of saturation in dietary lipids could influence ruminal metabolism and thus the performance in dairy cows. On the other hand, the addition of tannins is reported that could have positive effects on by-pass-proteins and modulation of ruminal fermentations. The aim of this experiment was to test two different lipid sources one saturated (hydrogenated fat – SF) and one unsaturated (extruded whole soybean – UF) and the addition of a tannins blend (T) on high producing dairy cows fed Parmigiano Reggiano type ration. 8 Italian Friesian cows were assigned to a Latin square design (14d adaptation, 7d sampling). Diets were balanced using NDS software, (CNCPS 6.55) to be isoenergetic and isoproteic: SFT+; SFT–; UFT+ and UFT–. Dry matter intake (DMI), daily water intake (WI), body weight, body condition score, rumination time (RT), reticular pH (r-pH) and milk yield (MY) were recorded. Rumen fluid VFA and ammonia, and milk composition were determined. Energy

corrected milk (ECM) was calculated. A mixed model procedure was used for data analysis; fat source and tannins presence and interactions were used as fixed effects, while animals and period as a random effect. Multiple comparisons were then performed by Student's *t*-test.

DMI (24.8 kg/d), WI (140 L/d), RT (521 min/d), BW (620 kg), BCS (2.25 pts) and total VFA production (98 mmol/L) resulted not strongly influenced by the treatments. r-pH resulted always safe excluding any risk of SARA (6.35 on average), however, the addition of T showed better pH stability, with fewer minutes below 5.8 ($-20 \text{ min/d}, p = .02$). UF diets reported higher MY (+1.55 kg/d, $p < .01$) but lower milk components (-0.21% milk fat, -0.04% milk protein $p < .01$), so ECM resulted equal (37.87 vs. 38.12 kg in SF and UF respectively, $p = .38$). As expected, milk urea was positively modulated by T ($-0.91 \text{ mg/dl}, p < .01$), even if rumen ammonia resulted with no variations (5.02 vs. 4.71 mg/dl in T– and T+ respectively, $p = .55$).

Obtained results showed that substitution of UF with SF produces an equalization of the production outputs with no risk of animal health and that tannins blend could improve nitrogen utilization and reticular pH.

0099

Evaluation of lactic acid bacteria as probiotics for gilthead sea bream (*Sparus aurata*): effects on growth and intestinal morphology, transcriptional response, and microbiota

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The administration of probiotics in fish has yielded positive results in numerous studies. The present research investigated the effects of dietary *Lactococcus lactis* subsp. *lactis* on growth performance, feed utilization, intestinal morphology, transcriptional response, and microbiota in gilthead sea bream (*Sparus aurata*). The trial was conducted with juveniles weighing 70–90 g, individually tagged and reared in nine 500-L tanks with 40 fish/tank. Fish were divided into 3 groups and were fed for 12 weeks with either a control (diet A) or experimental diets (diets B and C), supplemented with $2.0E+09$ CFU/kg and $5.0E+09$ CFU/kg dose of probiotic, respectively. The best growth performances were achieved by fish-fed diet C. Indeed, the final biomass of these animals was significantly higher than the control group (diet A), with intermediate values for fish fed diet B. Histological