110% of Ross specification tended to decrease feed, energy, and protein efficiencies (quadratic, $p = .06$) and pre-slaughtered weight (quadratic, $p = .10$) whereas increased serum uric acid concentration (quadratic, $p = .05$). Increasing Lys levels decreased serum P concentration (linear, $p = .02$) and immune response against NDV after the first vaccination (linear, $p = .09$) whereas increasing Met levels tended to increase serum concentration of cholesterol linked to high density lipoproteins (linear, $p = .09$). Met × Lys interaction were observed on serum glucose ($p = .01$) and ALP (tendency, $p = .06$), relative weights of rectum ($p = .02$), liver ($p = .02$), and bursa of Fabricius (tendency, $p = .06$). Results showed that optimal growth performance, blood serum parameters, immune responses, and carcass traits can be achieved if Met and Lys requirements of Ross 308 broilers are satisfied according to the Ross recommendations. Levels of Met and Lys higher than NRC specifications (approximately $+10\%$ on average over grower and finisher periods for Met and over starter, grower, and finisher periods for Lys) could be necessary for comparable results.

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Efficiency of *in vivo* ear flap NIR scan in the detection of differences related to diet or pregnancy status in young rabbit does

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The aim was to determine whether *in vivo* spectroscopy of the ear flap was able to detect the diet-related differences and pregnancy status, with its prognostic in forward or backward perspective.
Methods. Young grey Carmagnola rabbit does in groups of eight were fed diets enriched with: linseed at 5% (A); linseed at 5% and hazelnut skins at 1.5% (B); palm oil at 1.8% (C); and a standard diet (D), respectively. After the zero-point (P0) before A.I. a second point (P1) was fixed at d 21. A smart-NIR device (SCIO, 740-1030 nm) was used.

Chemometric analyses of the 331-point spectra were performed by using WinISI 1.5, without math pretreatment. Modified Partial Least Squares method was fitted to dummy binary variables. Outliers were identified once and excluded when $t > 2.0$. R^2 coefficient in cross-validation was retained as reference parameter. In parallel, for binary categorical discrimination, the proprietary software SCiO lab based on AKA (Also Known As) confusion matrix was used. Results. The NIR spectra were able to clearly perceive changes from a standard pre-experiment D diet to the A, B and C diets, with R^2 around 0.60, while the value was lower for diet D (0.29). This first outcome is favorable for the repeatability of the method and for a discernment of nutritional factors. Prognostic of gestation in backward mode (scan at P1) was significant with mild NIR relationship (0.35), not suitable for practical uses, while in forward mode prediction (scan at P0) result was poor (0.20). The feeding treatments with different fatty acid profiles were instead more accurately perceived in the NIR spectra, especially for the C group, which was discriminated from the A and B groups with a R^2 value of 0.71, which corresponds to a 75% reclassification as AKA. Interestingly, the antioxidant compound of the B diet was enhanced for a non-pregnant status (0.85 *vs* 0.12 when pregnant) and this could indicate the presence of interactions between growth and pregnancy requirements, as assessed from skin variations. Conclusions. At the present state of knowledge, the miniaturized NIR device looks promising, mainly for the assessment of body fat composition. As far as the feeding experiment is concerned, it should be pointed out that it is rare to obtain model R^2 values as high as those obtained during this preliminary work for a classic design, even multivariate ones, without extreme diets. The skin is an unbiased mirror of health and nutritional status of rabbits.

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Effects of arbuscular mycorrhizal fungi and low fertilizer supply on forage quality, milk traits and profitability

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The combined effect of arbuscular mycorrhizal fungi and low fertilizer supply on crop yield, *in vitro* rumen degradability of DM (IVDMD) and NDF (IVNDFD), and milk traits was