Identification of country of production of veal meat by NIRS and by meat quality measurements.

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The study used 356 veal calf meat samples received from Finland (n=16), France (n=109), Italy (n=81) and The Netherlands (n=150). Calves were raised under experimental protocols that compared feeding and housing practices normally used in each country to treatments aiming at improving animal welfare. Samples were taken at the 8th rib of *Longissimus thoracis* muscle 24h after slaughter. They were kept refrigerated (2-4 °C) under vacuum package for 6d and then frozen (-20 °C) until meat quality evaluation. Measurements included pH, color (Hunter Lab system), shear force, chemical composition (DM, Ash, Ether Extract, collagen and haematin content), weight and area cooking losses and a sensory evaluation by a group of panelists. A sample of meat was ground with a blade mill and scanned in duplicate between 1100 and 1498nm (FOSS NIRSystems 5000). WinISI software was used to develop a discriminating equation using NIR spectra (SNV-detrend, derivative=1, gap=4nm, smooth=4nm). The Proc ANOVA and DISCRIM of SAS were used for all the laboratory determinations. Country of production had a significant (P<0.01) effect on all the parameters. However, discriminant analysis using any or few laboratory parameters resulted in great errors of country classification. A more accurate (98.8%) classification was obtained only when using all the laboratory parameters. NIRS classified correctly 354 of the 356 samples (99.4%). Provided with a larger data set, NIRS could be used to identify country of production of veal meat.