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**Book of Abstracts**

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## C-003

**Testing the feasibility of a prototype welfare assessment protocol in intensive dairy goat farms**

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A prototype was tested during February-July 2014 in 30 Italian farms, previously classified according to their size (small:<50 goats; medium: 51-100; large:101-500). The assessment was conducted at group level from outside the pen (queuing at feeding and at drinking, improper disbudding, hair coat condition, kneeling, thermal stress, isolated animals, abnormal lying, Qualitative Behaviour Assessment), from inside the pen (severe lameness, kneeling, latency to first contact test, avoidance distance test), and at individual level (3-level BCS, faecal soiling, discharges, udder conformation, cleanliness, lesions, abscesses, claw overgrowth, knee calluses). Time needed to apply the prototype was recorded. ANOVA was used to compare the time required to apply the prototype in farms of different size. The average time required was 144.0±9.6 minutes (min:37, max:272): the group assessment took 81.0±9.6 minutes; the individual assessment took 63.0±5.8 minutes (min:10, max:146, depending on farm size: small *vs.* medium: P<0.05; small *vs.* large: P<0.01), ranging from 131.4±15.9 seconds/per goat if goats were manually restrained in the pen to 119.3±10.9 seconds if goats were locked at the feeding rack. The assessment at individual level showed many constraints, mainly due to the difficulties in restraining goats. Some indicators (*e.g.* abscesses, lesions) were separately recorded for different body regions, but this resulted too time-consuming and not particularly informative. Feasibility constraints were found at group level for avoidance distance test, mainly due to the difficulties in identifying individual animals. Qualitative Behaviour Assessment was welcomed by farmers, being a non-invasive method of observation. Hair coat condition was the most prevalent problem (24.1%±2.8), followed by improper disbudding (12.7%±3.0) and queuing at feeding (7.2%±0.7), whereas low prevalence was recorded for kneeling and abnormal lying (less than 0.5%). At individual level, the most frequent problems were claw overgrowth (47.2%±6.0), faecal soiling (16.7%±4.7), too thin (14.5%±2.5) and too fat goats (5.1%±1.3). The prototype seems suitable to be used in farms of different size. Farm routine was not altered and only slight disturbance was caused to the farmers. Some adjustments are required for improving the feasibility of the protocol, considering the constraints identified, the possibility of reducing disturbance to farmers and animals, and the low prevalence of some indicators.

## C-004

**The effect of the relaying mode on welfare of the pregnant sow**

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Animal welfare, particularly in pig, is a constraint for animal breeding. In this regard the Italian D.Lgs 53/2004 established that from 2013 sows and gilts shall be kept in groups during the four weeks after the service to one week before the expected farrowing time. Although its relevance is conceptually and extensively recognised, animal welfare is not yet fully characterized at an objective level and a protocol based on parameters for objectively evaluating animal welfare is still not available. The aim of this study was to evaluate a series of approaches in order to define informative markers associated with animal welfare, which allow an objective assessment of this status in the farm. Eight hundred pregnant sows reared in single and group-housing systems in a local farm were compared at different levels of investigation before and after the changeover imposed by law. Ethological, clinical, reproductive, metabolic and immunological measures were detected for each of the eight weeks of gestation (4 and 8-14). At the same time transcriptomic analysis of blood cells was conducted by OpenArray System on 224 genes involved in immunological response. The informativeness of the variables was studied by factor analysis and the effect of the housing system and the gestational week were studied by GLM. The odds ratio was calculated with the random component. Results showed that the group-housing system, contrary to the single-housing one, presented no stereotypy but significant increase in the frequency of lameness (P<0.001) and a decrease in fertility parameters (non-return to estrus 56-day post AI: 83% *vs.* 92%; farrowing rate: 78% *vs.* 88%, respectively) (P<0.05). The group-housing system revealed differences in the hematological picture for some parameters indicator of the metabolic status (ameliorative values for albumin, OR=4.4 and ALP OR=1.5 and pejorative for the AST, OR=0.6 and bilirubin, OR=0.4) when compared to the single, while at immunological level showed ameliorative values for bactericidal (OR=3.2) and complement (OR=24.3) and pejorative for lysozyme (OR=0.3) and C-reactive protein (P<0.001). At the functional genomics level, out of the 224