Animal-based welfare indicators in dairy sheep: preliminary results from on-farm monitoring
Ignacia Beltrán de Heredia, Josune Arranz, Susan Richmond, Cathy Dwyer & Roberto Ruiz
1Neiker-Tecnalia, Vitoria-Gasteiz, Spain, 2SRUC, Edinburgh, Scotland, United Kingdom rruiz@neiker.net

The assessment of sheep welfare presents particular challenges related to the exposure to the environmental conditions, the seasonality of the breeding cycle, as well as to the management practices of the farming system. There is a certain diversity of dairy sheep production systems in Europe, from traditional farming systems in mountain areas, fitted to the seasonal utilisation of natural resources, to crop-livestock production and even landless high productive intensive systems. The development of an animal-based protocol to assess the welfare status of the sheep has to envisage this diversity. Within the EU funded AWIN project, a two-step process protocol has been designed to screen farms for welfare in stage 1, to follow up with a detailed second stage if welfare concerns are detected. The protocol takes into account the 5 freedoms and the 4 principles of good welfare outlined within the Welfare Quality (good feeding, environment, health and behaviour). This prototype has been initially tested twice a year in 9 dairy sheep commercial flocks in Spain: 2 permanently housed and high productive flocks of the Assaf breed, and 7 Latxa sheep flocks only housed during winter months. According to the preliminary results, there are certain differences in the welfare conditions of sheep depending partially on the farming system, but also on the specific management practices implemented by the farmer. In permanently housed sheep, body cleanliness is usually poorer and the number of animals requiring hoof-trimming may be particularly high. In grassland based dairy systems, the seasonality of the productive cycle conditions the evolution of certain indicators throughout the year, such as body condition score, cleanliness, dag scoring, etc. The incidence of injuries and lesions is particularly focused in the ears due either to the particularities of the breed (Assaf) or to identification practices (eartags, marks). The implementation of the protocol has allowed a first, although partial and very limited, approach to the real situation of the welfare conditions of dairy sheep in some flocks in Spain. However, a broader comparison should be faced in order to cope with a higher diversity of farming conditions.

Acknowledgements
This article is based upon work from COST Action FA1308 DairyCare, supported by COST (European Cooperation in Science and Technology, www.cost.eu). COST is a funding agency for research and innovation networks. COST Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.