

**Session: Farm Economics and Succession in Mountain Livestock Farming**

**Best observed practices in efficient farms: How Data Envelopment Analysis (DEA) can serve as an innovation identification tool**

Theodoridis Alexandros<sup>1</sup>, Tafidou Anna<sup>2</sup>, Koutouzidou Georgia<sup>3</sup>, Morin Emmanuel<sup>4</sup>, Arsenos Georgios<sup>5</sup>

Aristotle University of Thessaloniki, Thessaloniki, Greece<sup>1,2,5</sup>, University of Macedonia, Thessaloniki, Greece<sup>3</sup>, L'Institut de l'Élevage, Toulouse, France<sup>4</sup>

This study aims to connect the concept of efficiency with the best observed practices and by extension to the identification of farm innovations through an empirical application. In this context, the technical efficiency (TE) level of 60 dairy sheep farms which are located in Western Pyrenees and Roquefort areas in France is estimated through the application of Data Envelopment Analysis (DEA) and the fully efficient farms are identified. The data used were collected by the technical organisations, within the French Livestock farms network "INOSYS Réseaux d'élevage". The sample farms are categorized on the basis of the estimated level of TE and their main technical and economic characteristics are compared. Through this approach, the management and production practices observed in the efficient farms are revealed and innovations that could be potentially introduced to other farms of the same or similar production system can be identified. The results indicate that 22 farms (36.7% of the total sample) are efficient, while the mean TE of the 60 farms is 85.7%, indicating that there are substantial inefficiencies among farms and that that given the level of inputs the average extensive dairy sheep farm could increase its production if it was operating efficiently. The descriptive analysis indicates that the efficient farms rear less ewes, who however achieve higher milk yields. Moreover, the efficient farms appear to manage more rationally human labour and depend more on home grown feed compared to the inefficient farms. Another interesting result is that the fixed cost per ewe is much higher in the inefficient farms, indicating that these farms are characterized by irrational investments and/or poor capital management and that they could decrease their fixed cost per animal by using their infrastructure at full capacity. Results also show that a higher level of efficiency is related to a higher value of production.