SUMMARY

Sheep welfare: physiological, immunological and milk quality parameters

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Many management practices may be stressful for livestock, resulting in physiological disturbance of animals and in reduced defense mechanisms against diseases. Especially sheep breeding, usually performed using grazing and pastoralism, can expose the animals to environmental stress, nutrition disorders, parasitic diseases. Moreover, sheep is subjected to stressful zootechnic practices such as early weaning, segregation for sanitary treatments, foot trimming, shearing, milking, man interaction. The aim of the study was to evaluate some different flock management in order to check adaptation and welfare condition to farm management that, in case of inappropriate procedures, may result in milk poor performance and losses. In order to do this, a set of animal based and resource based parameters have been analysed. Furthermore, a follow up of 10 ewes, selected in every farm, has been settled since lamb weaning and milking procedures starting up to 5 months monitoring. Some physiological indicators has been chosen useful in monitoring ewes adaptation to this zootechnic practice. Peripheral blood samples were collected once every month both in plain tubes and with K3-EDTA from the jugular vein and immediately sent to the laboratory. A total haemogram was performed and immune response was assessed by lysozyme serum levels as well as the lymphocyte subsets ratio CD4/CD8 and protein electrophoresis. Furthermore, glucidic, lipidic and proteic metabolism as well as acute phase protein and oxidative stress markers were analysed. Finally, milk quality parameters and productive performance were assessed as well as feedstuff quality. Many parameters have shown significant differences: NEFA higher values in farm 2 as well as cholesterol lower values in farm 1 and triglycerids and glucose higher values in farm 4. Lysozyme values together with leukocyte distribution (neutrophils and lymphocytes) showed higher values in farm 2 with significant differences. In the oxidative stress evaluation, free radicals showed over range values as well as antioxidants were below. Specifically regarding the oxidative innovative marker e-GST in farm 4 stress conditions are observed. Finally, despite a daily lower milk production, nutritional constituents are higher with significant difference.