ANIMAL HEALTH AND WELFARE INDICATORS, PRODUCTION SYSTEMS, AND MANAGEMENT PRACTISES ON CATTLE FARMS IN NORTHERN PORTUGAL

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I. INTRODUCTION

Animal welfare in dairy and beef cattle is increasingly given special importance. Products of animal origin play a crucial role in modern society; hence, their study is important, contributing to the improvement of the quality of life and health of animals. In this way, it is possible to provide all the appropriate conditions for their best growth and production performance, as well as for the economic sustainability of the producer [1]. This study focused on two distinct regions: Minho and Douro Litoral (MDL) and Trás-os-Montes and Alto Douro (TMAD). The aim was to carry out an epidemiological survey of the prevalent diseases in these regions, the mortality rates, and the potential risks for the human population associated with the rearing of dairy or beef cattle.

II. MATERIALS AND METHODS

The methodology used was based on epidemiological inquiry in 27 beef and dairy cattle holdings in the MDL and in 12 holdings in TMAD, for a total of 3498 animals in the MDL (2595 dairy; 903 beef) and 208 beef animals in TMAD. These farms were selected because of the record of pathological conditions found in *post-mortem* examinations in slaughterhouses. The inquiries are categorised into farm and animal components.

III. RESULTS AND DISCUSSION

The results comparing the studied geographic regions. MDL farms prioritise self-sufficiency (59%), while TMAD farms rely on outside purchases (44%). Discrepancies in animal welfare and management trainings were: 85% of MDL producers had training in the last 2 years, compared with 56% of TMAD producers who had training for more than 5 years. In MDL, their production is intensive (53%), with a diet based on maize silos, concentrate, straw, and hay (44%), while in TMAD, their production is predominantly extensive (67%), mainly natural pasture, clover, and sudan grass (60%). Both regions adopt sanitary prophylaxis, with 59% in MDL and 89% in TMAD, preventing the incidence of diseases.

Figure 1 demonstrates the different parameters evaluated in the MDL. The causes of culling recorded in this region were: age (2.46%); lameness (2.00%); accidents (1.32%) as a consequence of the automatic cleaning system existing in the dairy farms; chronic mastitis (0.71%), still the greatest concern in milk production, caused mainly by *Staphyloccus* spp. pneumonia (0.46%); low body condition index (BCCI) (0.17%); haematuria (0.14%) suspected to be caused by prolonged ingestion of *Pteridium* spp. foetuses; diarrhoea (0.11%); infertility (0.06%) due to being "freemartin" females. The causes of death were: pneumonia (2.32%); chronic mastitis (1.86%); accidents (1.46%); neonatal diarrhoea+pneumonia (1.11%); neonatal diarrhoea (1.03%); calving (0.40%); sudden death (0.29%); peritonitis (0.29%); natural death (0.17%); tympanism (0.09%); prolonged decubitus (0.06%); uterine rupture (0.06%); metritis (0.06%). Diseases identified included: pneumonia (0.29%); neonatal diarrhoea (0.20%); mastitis (0.11%); tympanisms (0.09%); lameness (0.06%); abomasal displacement (0.03%); and haematuria (0.03%).

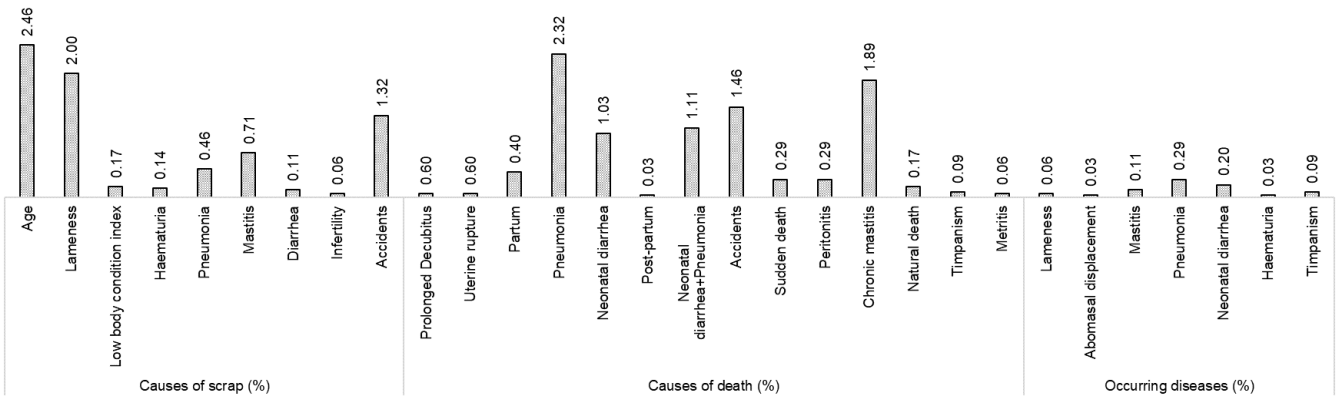

Fig. 1. Analysis of the principal causes of scrap and mortality associated with diseases identified in cattle farms in the Minho e Douro Litoral region. The results are expressed in percentage (%) according to the total number of animals.

As shown in Figure 2, in the TMDA region, the greatest cause of scrap was age (8.21%). It is followed by low ICC (0.71%); lameness (0.36%), due to infections or injuries or also to inadequate management and feeding practises; low production (0.36%); paratuberculosis (0.36%). The causes of mortality were: birth (2.14%); pneumonia (1.43%); sudden death (0.71%); diarrhoea (0.36%); foreign body (0.36%). Occurring pathologies included: pneumonia and neonatal diarrhoea (both with 0.71%); metritis (0.36%).

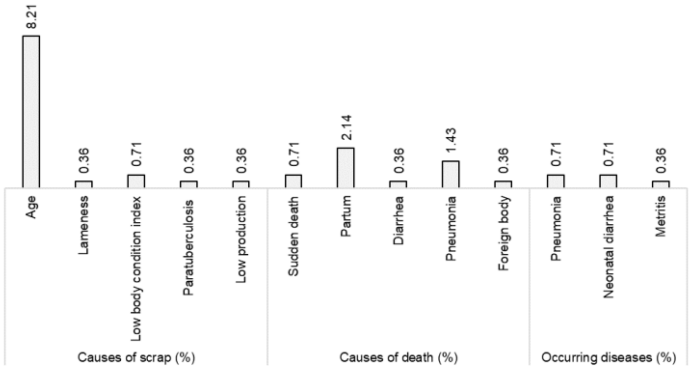

Fig. 2. Analysis of the principal causes of scrap and mortality associated with diseases identified in cattle farms in the Trás-os-Montes e Alto Douro region. The results are expressed in percentage (%) according to the total number of animals.

IV. CONCLUSION

The result of this study demonstrates the importance of adopting the One Health methodology to ensure the overall welfare of animals and the ecosystem in areas dedicated to cattle farming. Further studies are needed to be able to determine the critical risk factors as well as understand the complex relationships between animal and human health, including cattle farming practises, whether dairy or beef.

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REFERENCES

1. Mandel, R., Bracke, M. B., Nicol, C. J., Webster, J. A., & Gygax, L. (2022). Dairy vs beef production–expert views on welfare of cattle in common food production systems. Animal 16: 100622.