

**25<sup>th</sup> International Congress of the  
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**Fe. Me. S. P. Rum.**

**PROCEEDINGS**

# Could a locomotion score be useful in the type trait assessment of the Italian Mediterranean Buffalo?

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## INTRODUCTION

A correct morphology of the Italian Mediterranean Buffalo is considered a fundamental requirement to ensure greater welfare and longevity of the animals (Booth, C. J., et al., 2004). Strong limbs and feet are traits that have been included in selection indices for dairy breeds (Miglior, F., et al. 2005) and have recently been included also in the selection index used by the National Association of Buffalo Breeders (ANASB). The type trait assessment of IMB include 3 linear limb descriptors: hock angle, heel height and fetlock strength. The aim of this study was to define a linear scale for a locomotion score and to verify how this can be useful to complete the description of limbs and feet in the type trait evaluation of the IMB.

## MATERIALS AND METHODS

The type trait evaluation was assessed for 4311 IMBs registered with ANASB and a locomotion character was measured for each of them on a linear scale from 1 to 50. Statistical analyses were performed by IBM SPSS statistics 29.0 (2023); Pearson's correlation test was used to assess the relationships of locomotion with the other descriptors related to skeletal structure and limb conformation. Linear regression analysis using the stepwise method was carried out in order to assess how the overgrown claw (OGC), open claw (OPC) and corkscrew claw (CC) defects (ICAR 2022), could influence locomotion together with the various characters relating to skeletal structure and limbs and feet. Claw defects were included as dummy variables. Age at assessment was also included in the regression analysis.

## RESULTS AND CONCLUSION

Significant correlations were found between locomotion score and linear traits for structure but with not relevant  $r$  values ( $< 0.09$ ) while significant and higher  $r$  values were found for limb conformation: hock angle ( $r = -0.35$ ;  $P < 0.01$ ), fetlock strength ( $r = 0.39$ ;  $P < 0.01$ ) and heel height ( $r = 0.35$ ;  $P < 0.01$ ). The factors included in the equation were: age at assessment, OGC and CC defects, all the descriptors for limb, height at withers and chest width. The  $R^2$  of the overall model was 0.51. A closed hock angle penalized the locomotion score by -0.37 points for each point of its linear value, while each linear point of fetlock strength and heel height added 0.22 points to the linear value of locomotion. The presence of OGC defect reduced the locomotion score by 1.9 points while the presence of the CC penalized it by 0.84 points. The study results seem to confirm the locomotion score a useful aid in defining limb functionality, as it appears to summarise the information related to the three limb descriptors combined with the claw defects. However, part of the variability in the locomotion score

was explained by other components, including the environmental effect and other factors that need to be better characterised on more data.

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