HappyFeet: Hoof Health Project in Italian Holstein cattle

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Abstract

Hoof lesions are a significant issue in dairy herds, with a prevalence ranging from 40% to 70%. In Italy, hoof lesions are the second leading causes of culling cows, following fertility and reproductive disorders. Hoof health is also related to economic and social consequences, resulting in increased labour expenses, reducing milk production, longevity, fertility, health and welfare. Management practices and genetic selection are crucial for reducing hoof lesions in dairy cows.

Italian Holstein, Brown and Jersey Breeders Association (ANAFIBJ) in collaboration with a group of hoof-trimmers is collecting data on hoof lesions through the HappyFeet Project. Data are collected using an Android App developed by FA.MA Services (FA.MA Services, Milan (MI), Italy) and installed into a portable device (e.g., tablet) according to ICAR Atlas. A total of 18.826 hoof lesions records are stored into ANAFIBJ database collected on 10.583 Italian Holstein lactating cows across 78 herds in Italy. Most frequent lesions are dermatitis (18%), sole ulcer (14%) and sole hemorrhage (9%). Further descriptive statistics related to hoof lesions prevalence are studied based on season, including year, semester, quarter and trimester as well as factors like parity and lactation stage.

The objectives of the HappyFeet Project are to streamline data from hoof-trimmers to database, to provide a benchmark reference both for farmers and hoof trimmers and to set up a genetic and/or genomic evaluation for hoof health.

Keywords: hoof lesions, data-collection, hoof health.
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Introduction

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Material and methods

Italian Holstein, Brown and Jersey Breeders Association (ANAFIBJ) in collaboration with a group of hoof-trimmers is collecting data on hoof lesions through the HappyFeet Project. Data are collected using an Android App developed by FA.MA Services (FA.MA Services, Milan (MI), Italy) and installed into a portable device (e.g., tablet) according to ICAR Atlas.

First data have been collected from September 2022 with a total of 380 visits in 99 Italian farms. 27.085 hoof lesions records are now available in ANAFIBJ database collected on 14.401 animals.

Results

Descriptive statistics at National level related to hoof lesions prevalence based on season, including year, semester, quarter and trimester as well as factors like parity and lactation stage are reported in this article.

The majority of visits (75%) are carried out in northern Italy, while others are carried out in the south and in the islands (Figure 1).

Figure 1. Geographical distribution of visits.

Figure 2. Kind of visits distribution.

Regarding the distribution of visits, 65% are ties, 27% time-trimming, 6% visits on request and 2% emergencies (Figure 2)

Healthy animals are over 45%. the most frequent lesions are digital dermatitis (18%), soleal ulcer (11%), hemorrhage (7%), wall abscess (7%). Other lesions are less relevan (Figure 3).

In addition to the cumulative descriptive statistics, the evolution of hoof lesions per year from 2022 to 2024 (Figure 4), and the evolution of hoof lesions per quarter from 2022 to 2024 are also reported (Figure 5).

Descriptive statistics relating to cumulative hoof lesions are also available, by year and quarter, depending on the order of calving and stage of lactation (Figure 6 to Figure 11).

All these descriptive statistics are provided also to farmers at herd level.

Figure 3. Hoof lesions frequency.

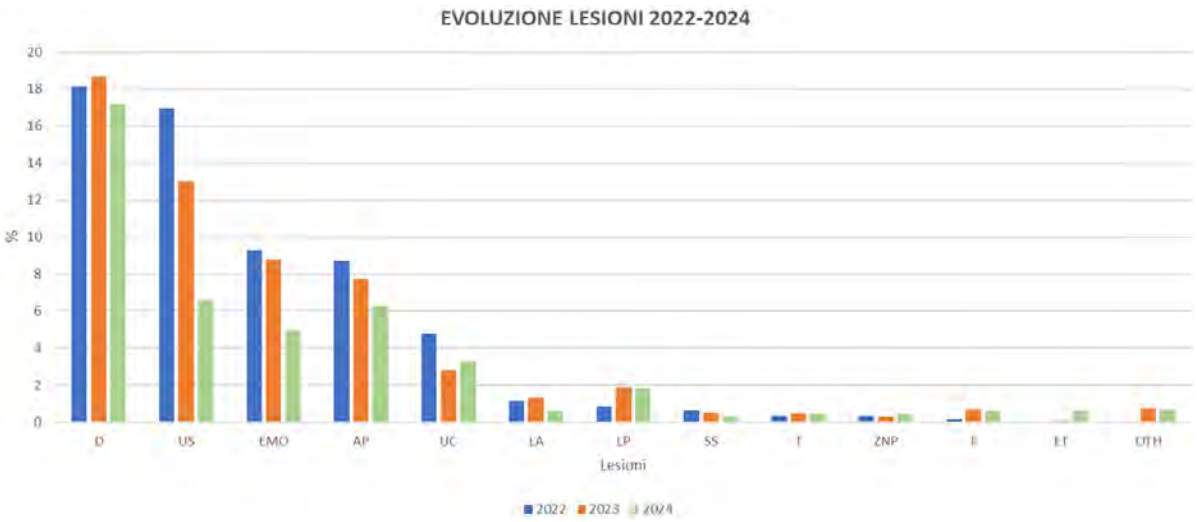

Figure 4. Evolution of hoof lesions per year (2022-2024).

Figure 5. Evolution of hoof lesions per quarter (2022-2024).

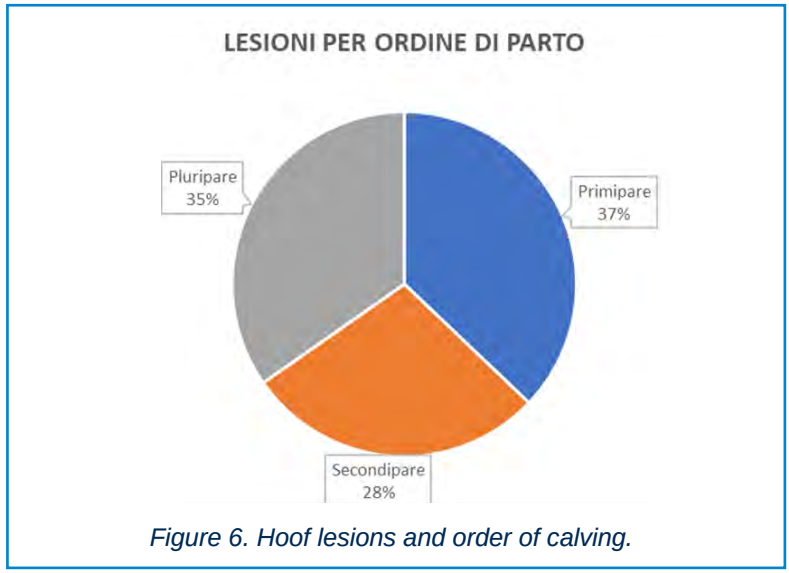

Figure 6. Hoof lesions and order of calving.

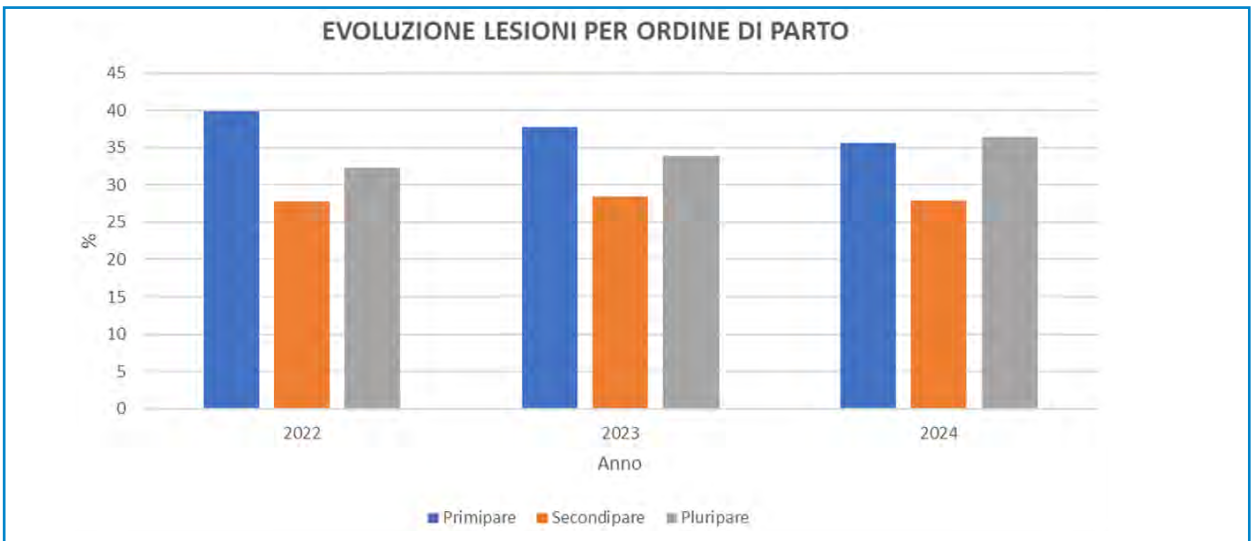

Figure 7. Hoof lesions, order of calving per year.

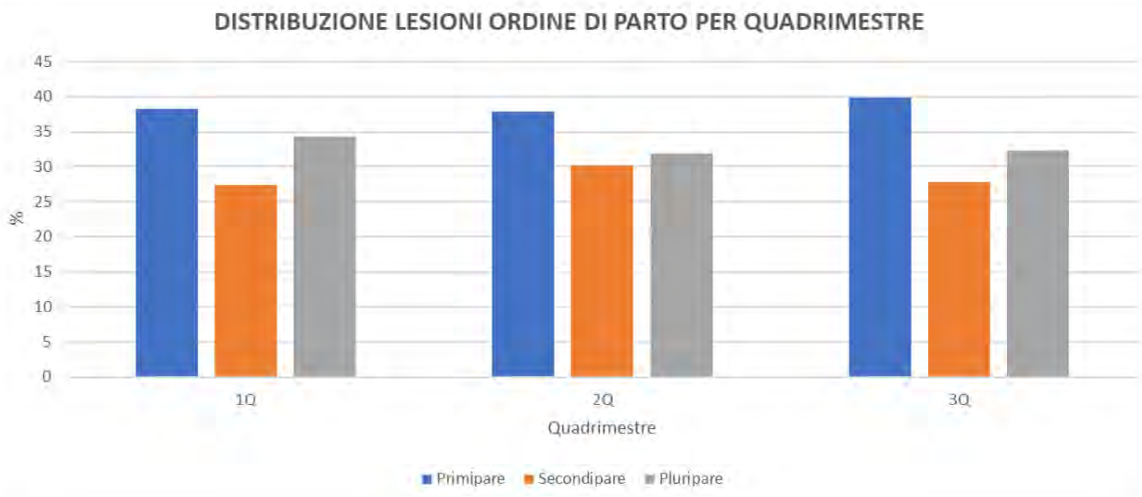

Figure 8. Hoof lesions, order of calving per quarter.

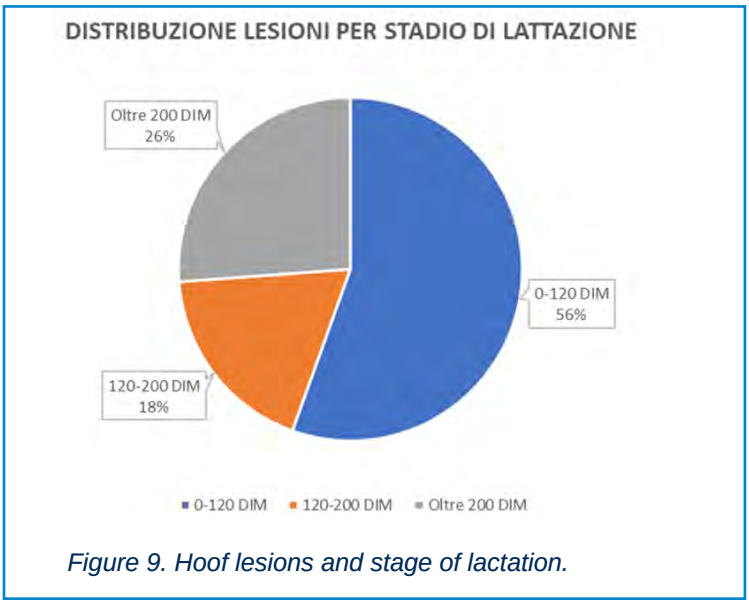

Figure 9. Hoof lesions and stage of lactation.

Figure 10. Hoof lesions, stage of lactation per year.

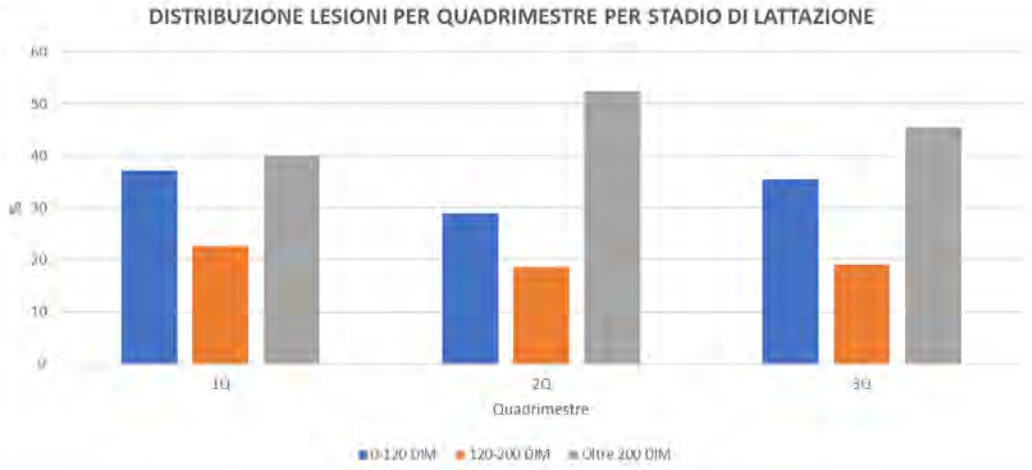

Figure 11. Hoof lesions, stage of lactation per quarter.

Conclusion

HappyFeet project is at starting stage and, of course, data collection is going to be enhanced. Further objectives of the Project are:

1. To provide benchmark reference at national, regional and herd level.
2. To perform an Italian economical evaluation for hoof lesions.
3. To set up genetic evaluation for hoof health.