



divas

DIPARTIMENTO DI MEDICINA
VETERINARIA E SCIENZE ANIMALI

How can the seasonal climate changes influence horse's health and welfare in the extensive farming system ?

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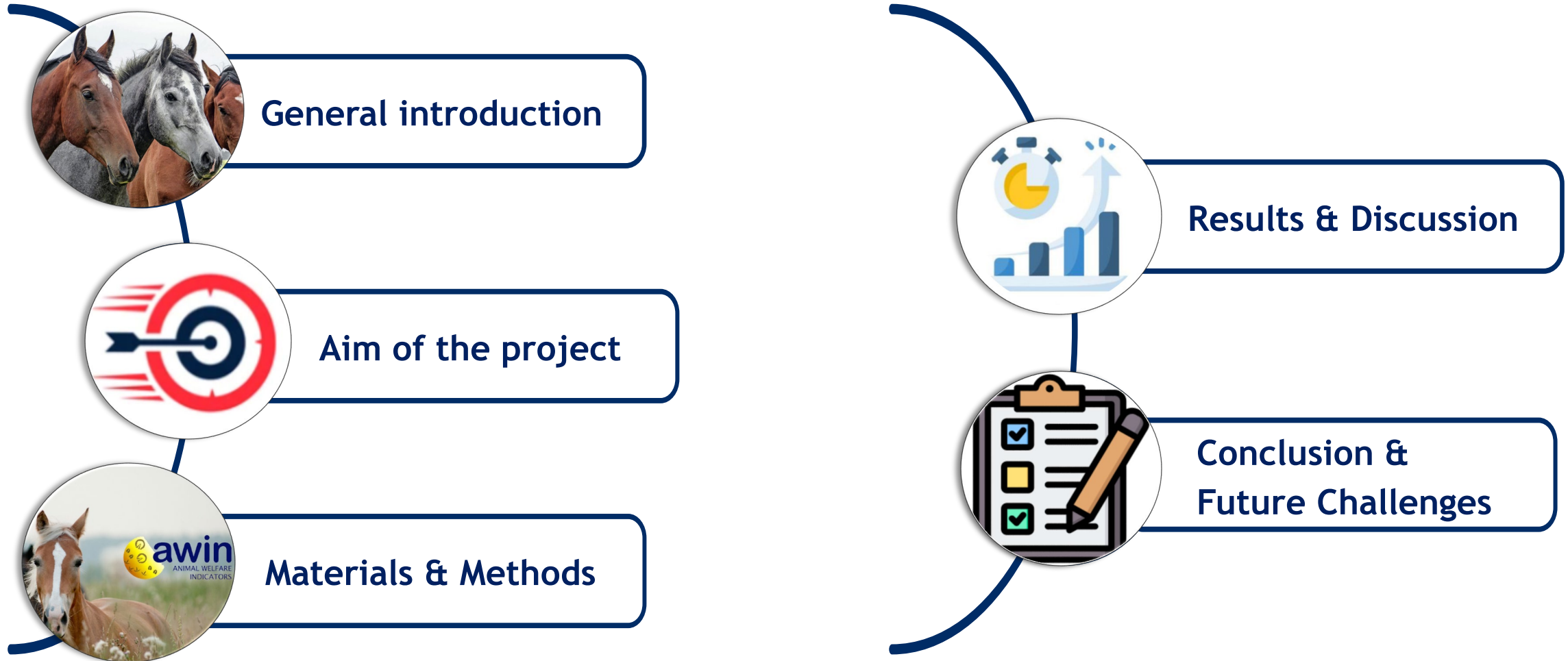
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Outline



Introduction

Individual boxes



Group housing



Introduction

CHALLENGES

Soil Quality and Degradation



Pests and Diseases



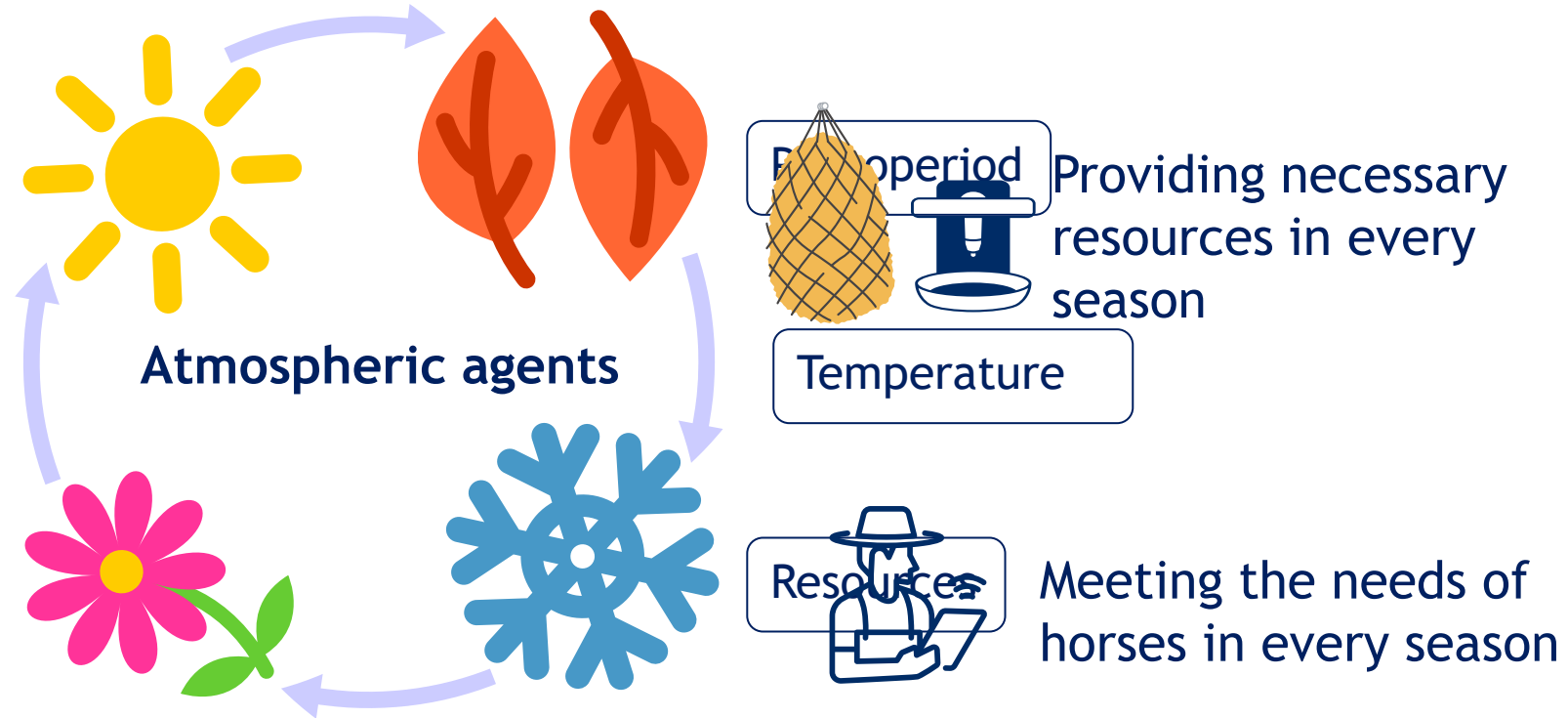
Water Management



Climatic and weather changes

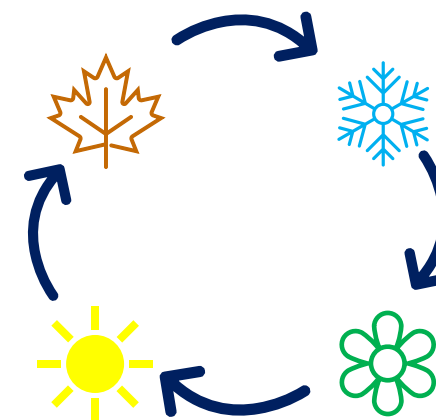
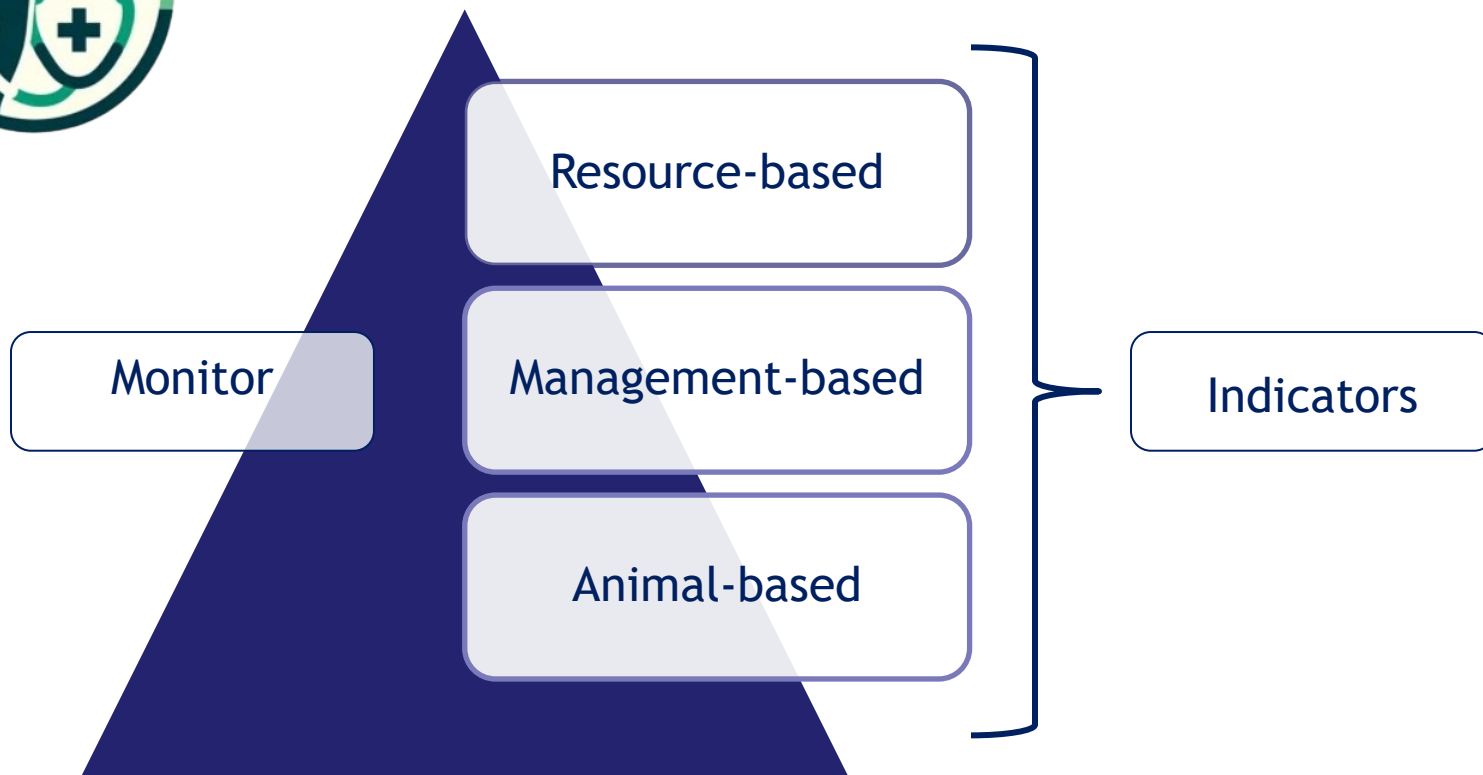


Introduction





Aim of the project



Materials and methods



- **7 stables** for leisure horses located in Lombardy, Piedmont and Abruzzo
- At least **10 healthy horses** from each stable → **90 in total**
- Age interval: **5-25 years**



Materials and methods

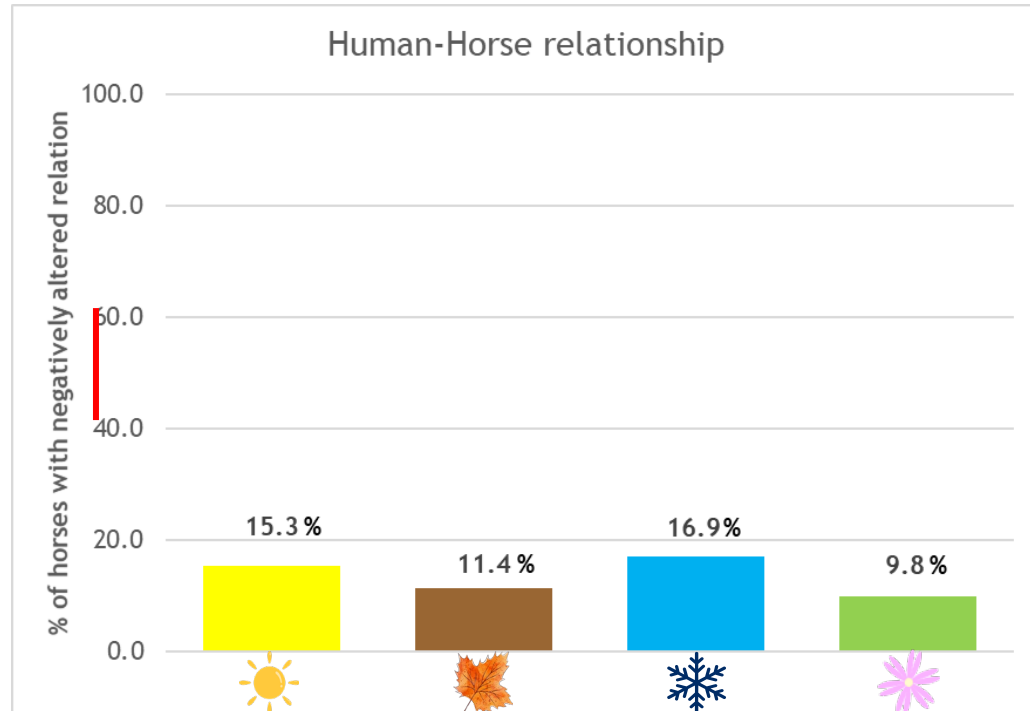
- Modified version of AWIN Protocol (2015) for evaluating the welfare of horses housed outdoors



- 1 Stereotypies**
- 2 Human-animal relationship**
- 3 Body Condition Score**
Score 1-5
- 4 Hair coat condition**
- 5 Bite Injuries**
- 6 Swelling joints**
- 7 Lameness**
- 8 Integumentary alterations**
Alopecia, Skin lesions, Deep wounds & Swelling
- 9 Discharges**
Nasal, Ocular...
- 10 Respiratory problems**
Cough, abnormal breathing...
- 11 Prolapse**
- 12 Signs of hoof neglect**
- 13 Questionnaire**
(Health issues, Treatments)

Results and discussion

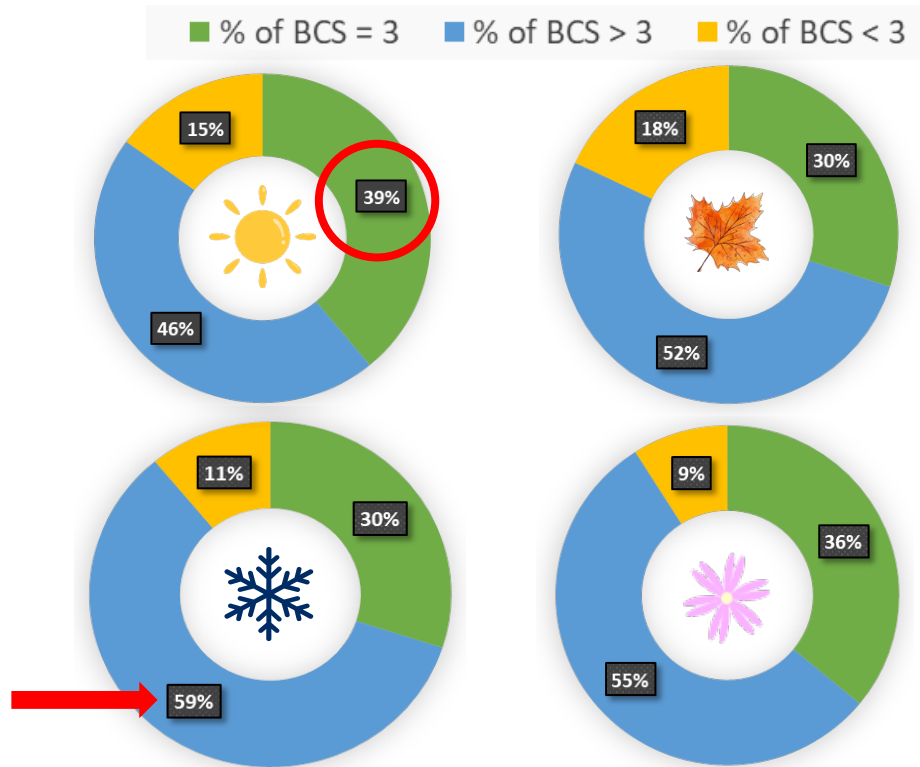
Human-animal relationship



- Despite the large amount of data available, the perception of the handling of horses, still leads to relational problems of distrust towards the trainers

Results and discussion

Body Condition Score (BCS)



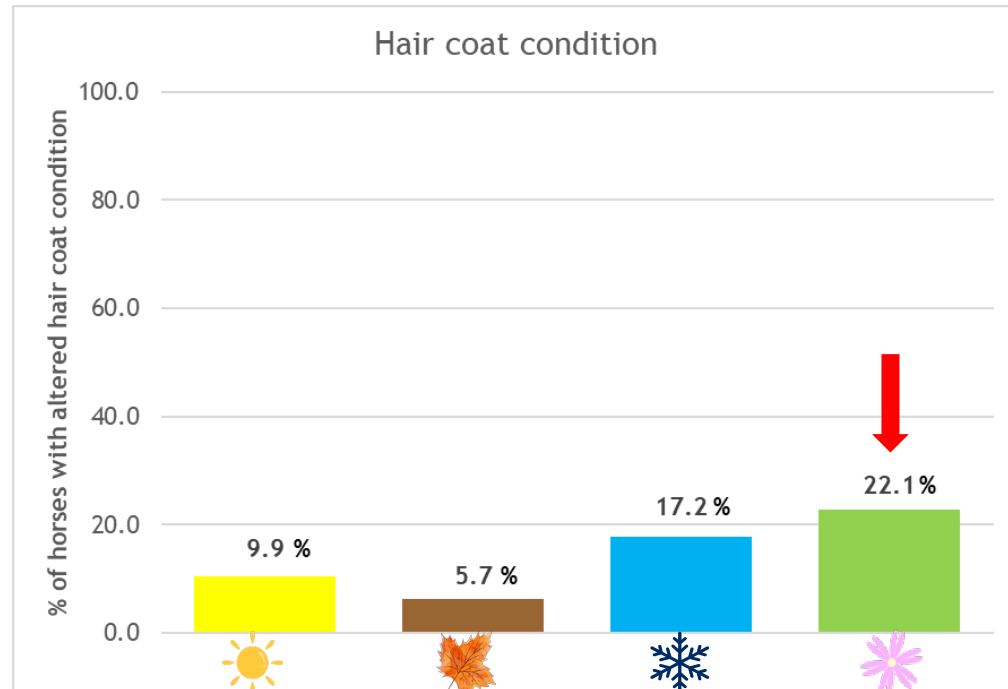
PeerJ	© 2014. Published by The Company of Biologists Ltd The Journal of Experimental Biology (2014) 217, 4320-4327 doi:10.1242/jeb.111815	THE COMPANY OF Biologists	animal
Obesity p outdoor	RESEARCH ARTICLE		
Research article	Saving energy during hard times: energetic adaptations of Shetland pony mares		
Sarah L. Giles	Lea Brinkmann ¹ , Martina Gerken ¹ , Catherine Hambly ² , John R. Speakman ^{2,3} and Alexander Riek ^{1,*}		
Published Mar	E. Canali ¹ , M. Minero ¹		

- The loss of body condition at the end of winter suggests a situation of energy catabolism due to the lack of resources.
- The average condition activity of horses during the day is highly affected by the daily exercise and nutrition management.



Results and discussion

Hair coat condition



RESEARCH ARTICLE

PLOS ONE

The effects of extended photoperiod and warmth on hair growth in ponies and horses at different times of year

Christiane O'Brien , Megan Ruth Darcy-Dunne, Barbara Anne Murphy  

Published: January 14, 2020 • <https://doi.org/10.1371/journal.pone.0227115>

- The photoperiod & temperature promote the start of the hair shedding process which highlights problems that remain hidden in seasons where the coat is longer



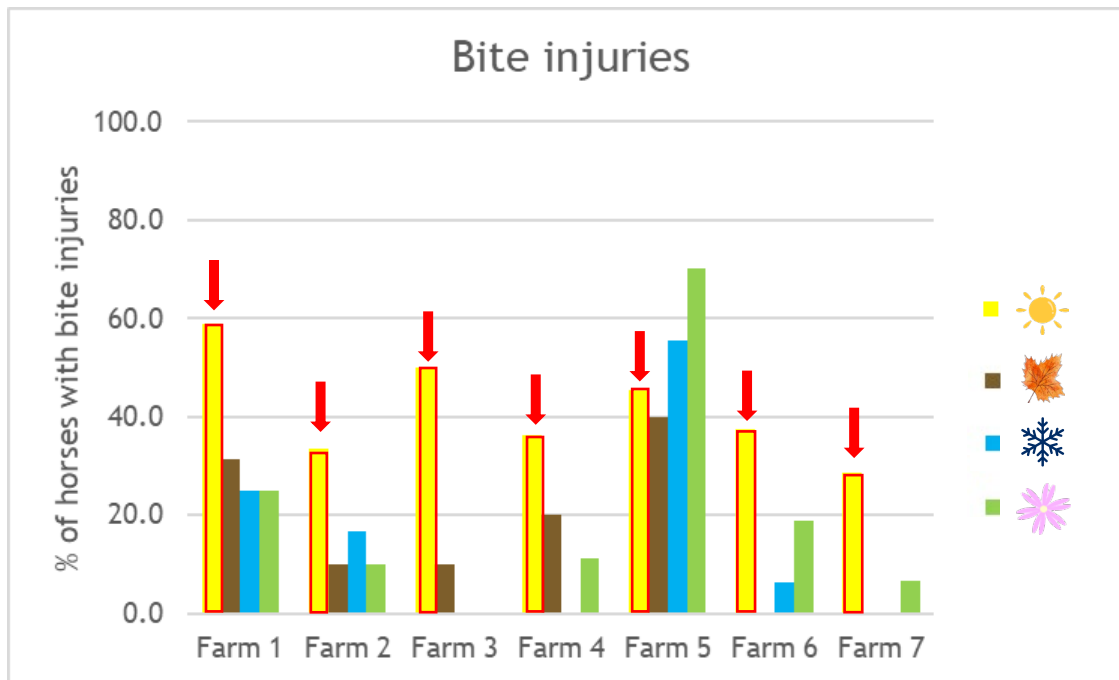
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75th annual meeting of the European Association for Animal Production
Florence 1-5 September 2024



Results and discussion

Bite injuries



In group housing, difficulties are encountered with introducing new horses in an existing group, especially if not applied through gradual inclusion

EQUINE VETERINARY JOURNAL
Equine vet. J. (2008) **40** (3) 219-223
doi: 10.2746/042516408X253118



Bite and kick injuries in horses: Prevalence, risk factors and prevention

J. M. KNUBBEN, A. FÜRST*, L. GYGAX† and M. STAUFFACHER

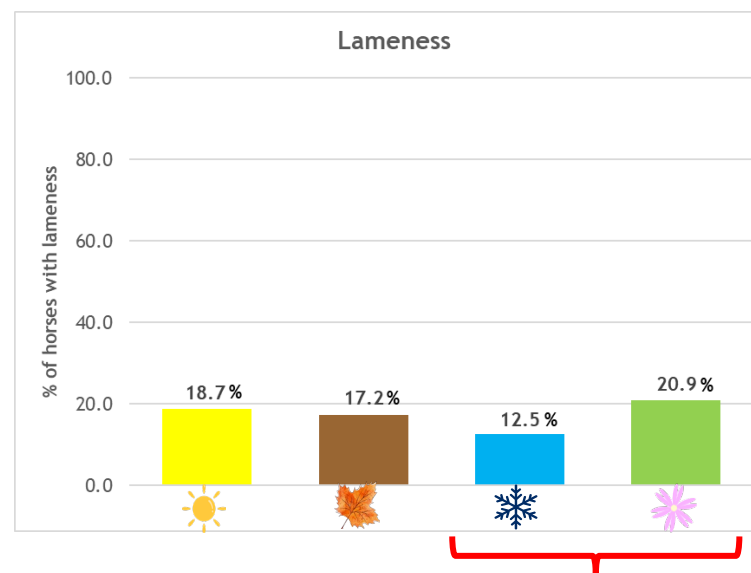
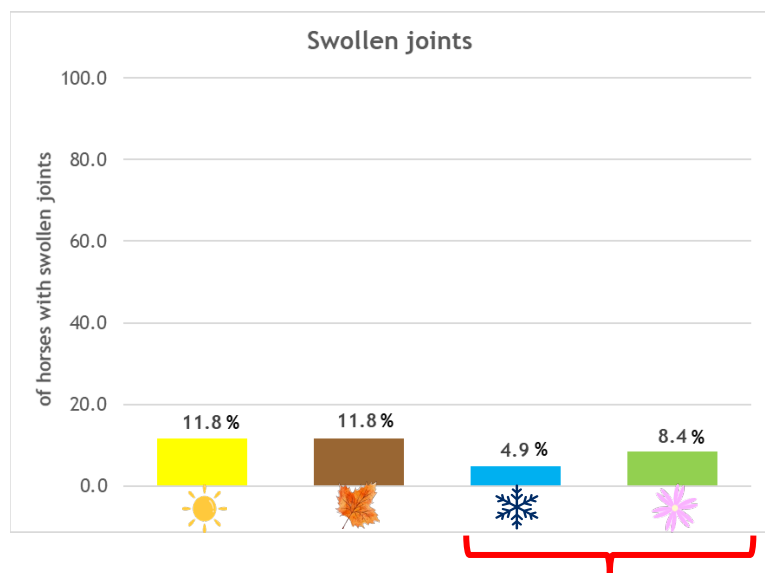
Institute of Animal Sciences, Physiology and Behaviour, ETH Zurich, LFW B55.1, CH-8092 Zurich; †Equine Hospital, Vetsuisse Faculty Zurich, University of Zurich, CH-8057 Zurich; and ‡Federal Veterinary Office, Centre for Proper Housing of Ruminants and Pigs, Agroscope Reckenholz Tänikon Research Station ART, Tänikon, CH-8356 Ettenhausen, Switzerland.

Group hierarchy, housing systems and adequate space management are important factors in the prevalence of bite injuries



Results and discussion

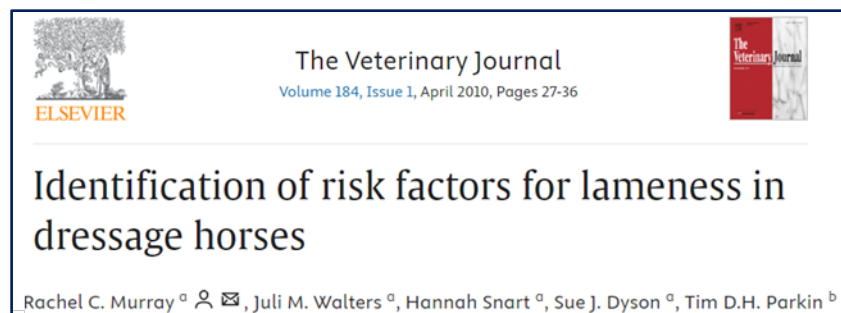
Swollen joints & Lameness



Allow the drainage of water



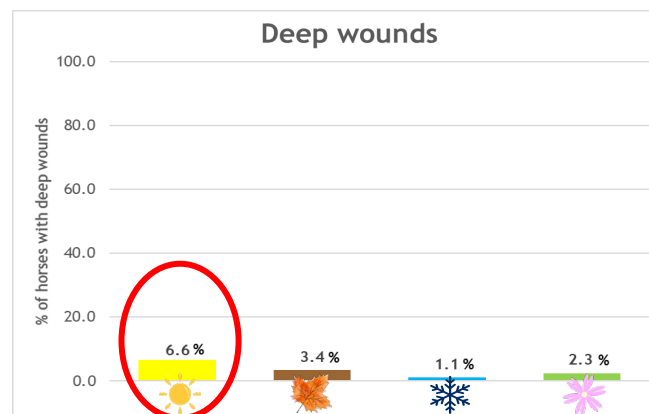
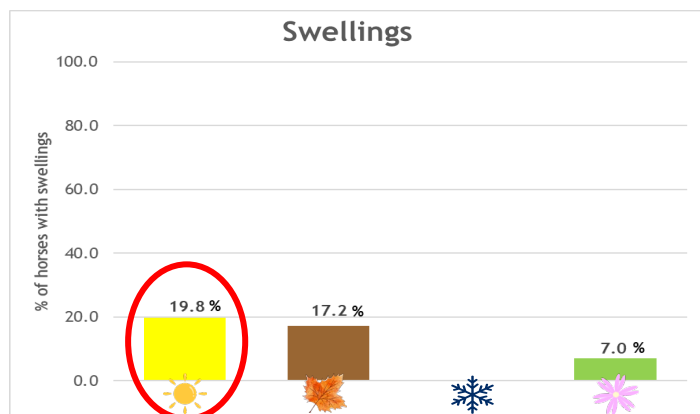
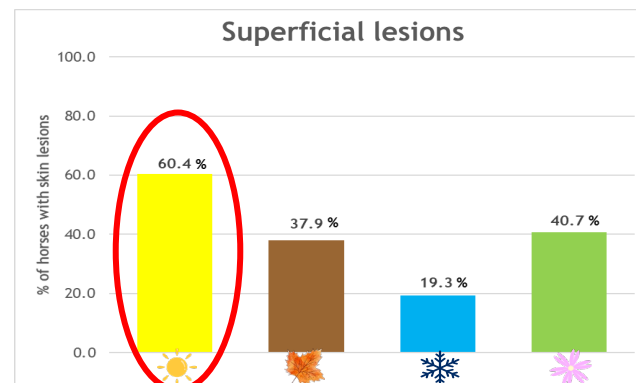
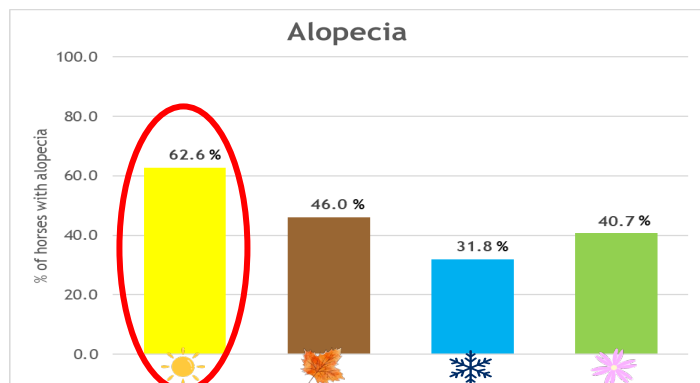
Prevent the accumulation of mud



Pasture condition plays a crucial role, as surfaces that become deeper in wet conditions are associated with increased lameness risk

Results and discussion

Integumentary alterations



Does housing system affect horse welfare? The AWIN welfare assessment protocol applied to horses kept in an outdoor group-housing system: The 'parcours'

Published online by Cambridge University Press: 27 February 2023

Francesca Dai , Emanuela Dalla Costa , Michela Minero and Christine Briant

A main risk factor, leading to dermatitis and skin alterations in the summer season, is insect bites, in particular *Culicoides spp.*

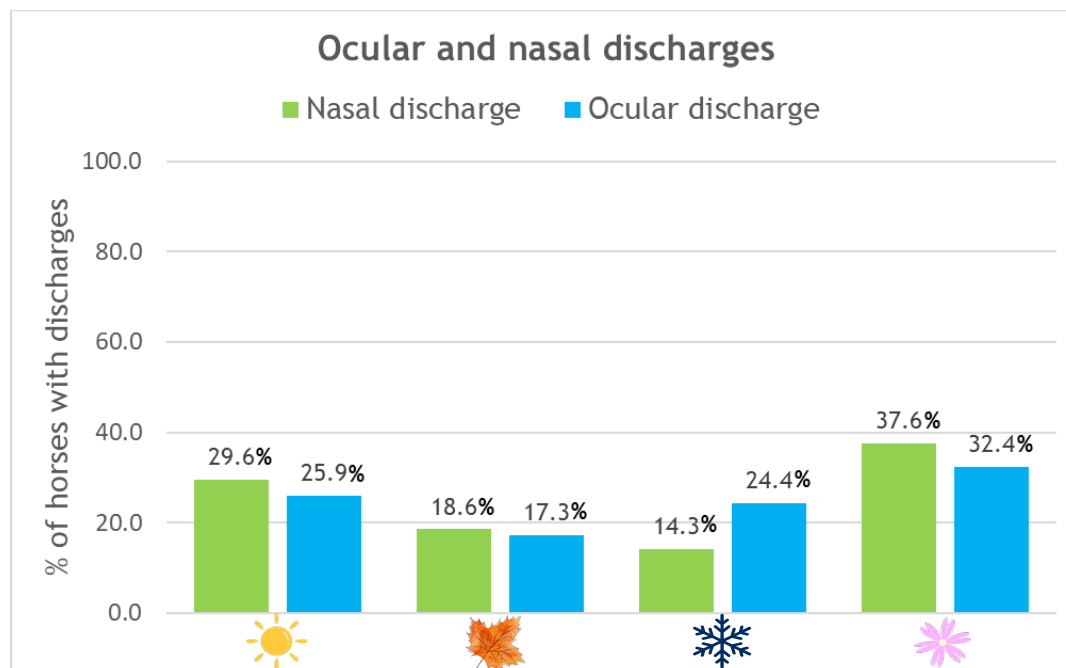


1. Fly blankets and masks
2. Pastures located near a watercourse
3. Grazing on damp land
4. Provide shelters from insects



Results and discussion

Discharges (Ocular & nasal)



JOURNAL ARTICLE

Risk factors associated with health disorders in sport and leisure horses in the Netherlands

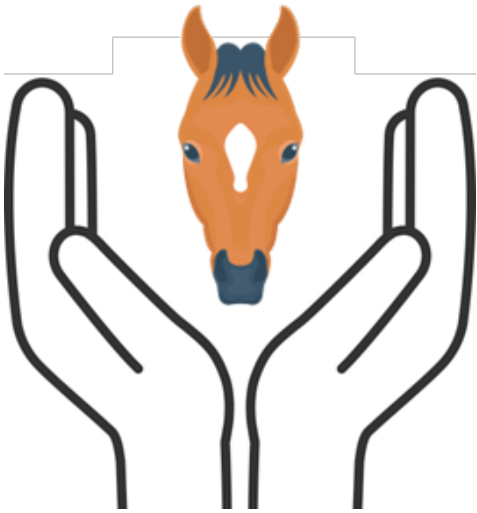
E. K. Visser ✉, F. Neijenhuis, E. de Graaf-Roelfsema, H. G. M. Wesselink, J. de Boer, M. C. van Wijhe-Kiezebrink, B. Engel, C. G. van Reenen

Journal of Animal Science, Volume 92, Issue 2, February 2014, Pages 844–855,

Environmental irritants are important factors that increase the incidence of nasal and ocular discharges



Conclusions and future challenges



- Indicators → Identifying critical management issues
- Same evaluation protocol will be repeated for another calendar year → The influence of seasonality
- Adaptive management strategies to mitigate climate-induced stressors
- Advanced monitoring technologies to enhance the precision of welfare indicators under variable environmental conditions
- Highlight management practices importance to stakeholders



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TERAMO

Thank you for your attention !



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