Cairo University
Faculty of Veterinary Medicine
Department of Veterinary Hygiene and Management

Welfare of Working Equids in Egypt

Presented by

Ahmed Badr Abd El-Wahab Ali

(BVSc. Cairo University, 2007; MVSc. Cairo University, 2011)
(Animal Behaviour and Management)

A dissertation submitted to
Faculty of Veterinary Medicine
In Partial fulfillment of the requirements
For the degree of Ph.D. in Veterinary Medical Science
(Animal Behaviour and Management)
Under the supervision
Of

Prof. Dr. Mohammed Y. Saleh Matoock
Professor of Animal Behaviour and Management, Faculty of Veterinary Medicine, Cairo University, Egypt

Prof. Dr. Manal A. Foaud
Professor of Animal Behaviour and Management, Faculty of Veterinary Medicine, Cairo University, Egypt

Prof. Dr. Camie R. Heleski
Professor of Animal Science and Behaviour, College of Agriculture and Natural Resources, Michigan State University, USA

(2016)

Cairo University
Faculty of Veterinary Medicine
Department of Veterinary Hygiene and Management

SUPERVISION SHEET

Prof. Dr. Mohammed Y. Saleh Matoock
Professor of Animal Behaviour and Management,
Faculty of Veterinary Medicine,
Cairo University.

Prof. Dr. Manal A. Foaud
Professor of Animal Behaviour and Management,
Faculty of Veterinary Medicine,
Cairo University.

Prof. Dr. Camie R. Heleski
Professor of Animal Science and Behaviour,
College of Agriculture and Natural Resources,
Michigan State University, USA

(2016)

Cairo University, Faculty of Veterinary Medicine,
Department of Veterinary Hygiene and Management.

Name: Ahmed Badr Abd El Wahab Ali
Date and place of birth: 4/4/1985, Cairo, Egypt
Nationality: Egyptian
Degree: PhD in Veterinary Medical science
Specialty: Animal Management and Behaviour
Thesis Title: Welfare of working equids in Egypt
Supervisors:
Prof. Dr. Mohammed Y. Saleh Matoock, Professor of Animal Behaviour and Management, Faculty of Veterinary Medicine, Cairo University.
Prof. Dr. Manal A. Foaud, Professor of Animal Behaviour and Management, Faculty of Veterinary Medicine, Cairo University.
Prof. Dr. Camie R. Heleski, Professor of Animal Science and behavior, College of Agriculture And Natural Resources, Michigan State University, USA.

Abstract

There are an estimated 112 million horses, donkeys and mules (i.e. working equids) in developing regions of the world. Though their roles are often fundamental to the well-being of the families they work for, their welfare is often severely compromised due to the limited resources and/or limited knowledge base of owners. The main objectives of the current study were; To build up a multifactorial welfare-assessment system for accurate, comprehensive and reliable welfare-assessment of working equids, which NGOs, practitioners, veterinarians and researchers can use to evaluate the welfare status of working equids. Moreover, there were no available reports regarding the prevalence of helminthes in working equids in Egypt. Thus, another objective of the current study was to investigate the prevalence of parasitic infestation in working equids in Egypt.

A total of 5248 working equids (n=2198 horses, 2640 donkeys, 410 mules) were assessed between February 2012 – January 2014. Equids were divided into categories based on the three species involved, as well as the four work types involved (transporting goods or people by cart, ridden <e.g. in tourist locations>, or working in brick kilns). The results suggested that, The welfare-assessment score has met our initial objective to be a useful tool in identifying which equids have more welfare problems (i.e., which species, type of work, age and sex). This, in turn will help in selection of the proper type of interventions needed and targeting such interventions toward the most vulnerable working equids. The idea of describing the welfare status of the working equids by a number, which then can be converted into the corresponding welfare category of "Adequate, Inadequate or Poor" was designed to be easily used either for many or few equid welfare-assessment s. Also, numerical description for the welfare status of working equids, would be greatly beneficial particularly, for NGOs that run activities in several provinces and districts. Such approach would enable them from monitoring the effectiveness of their activities on enhancing the welfare status of working equids thus, a decision whether to maintain or to end their activities in a certain provenience can be thoroughly and easily made. Furthermore, it was found that *Strongyle* and *Parascaris* infections are endemic in working equids in Egypt, with high rates of infection intensities. Young (under 3 years) and old (older than 15 years) working equids are more susceptible to high parasite burdens than medium age.

Key Words: working equids, welfare-assessment, equine behavior, equine welfare, Strongyle, P. equorum, BCS.

Dedication

I would like to dedicate this humble dissertation with lots of love and respect to the soul of my beloved father asking Allah to reward him the highest degree of heaven for the good deeds that he left in us, my mother asking Allah to grant her good health, a long life and happiness. Also, I would like to dedicate this work to my eldest brother for being always there whenever I needed advice and guidance. Also, would like to dedicate this work to All the NGOs that help working equids all over the world, and to these equids that indeed suffer to afford life for their owners, the poorest section of our communities.

Acknowledgements

All praise is due to **Allah**, I praise him, seek his aid and forgiveness. I thank Allah Almighty for giving me the inspiration, patience, time, and strength to finish this work successfully. This dissertation was the result of collective efforts of a number of important people who directly or indirectly assisted and supported me during my doctoral studies. To those people, I owe my gratitude and thanks.

First and foremost, I would like to express my sincere gratitude and deepest appreciation to my supervisor, **Dr. Mohamed Y. Matoock** for his tireless help, advice, guidance, patience and wisdom, invaluable comments and criticisms, encouragement and his personal support throughout the course of my Ph.D. His positive attitude and constant supports for guiding, reviewing and commenting my work have made this thesis possible. It has been a real privilege and honor for me to have him as my supervisor. Enormous thanks goes to **Dr. Manal A. Fouad** for her valuable advices, and support whenever I have needed during my graduate studies. Deepest thanks and appreciation to **Dr. Camie R Heleski** for giving me the opportunity to join her laboratory to pursue my studies. Dr. Heleski's mentorship, expertise, advice, recommendations and valuable guidance were instrumental in the completion of this study. During my stay in Dr. Heleski's lab, I have worked with a number of fine people whose contribution, discussions and advice have made this thesis much easier.

Exceptional thanks to **Amy McLlean** and **Luis J. Montiel** for their help, advice and valuable guidance. I am thanking to **all my professors and colleagues** in Animal management and behaviour, Cairo University also i would like to thank the **Egyptian Ministry of Higher Education** for the joint Supervision scholarship I got to pursue my dissertation research in the USA. I would like to thank also **my friends** who have made Michigan a very special and enjoyable place over the 2 years, you have provided me with encouragement, sound advice, good company, and lots of good ideas.

Hoping that this thesis may be useful and serve good purposes for all humankind, I finally would like to thank everybody who was important to the successful realization of my thesis, if I failed to include your name above, but you helped me in one way or another, my sincere thanks goes out to you.

Ahmed Ali, *Michigan, USA.*

Table of contents

List of Tables