

# The management and welfare of working animals: identifying problems, seeking solutions and anticipating the future

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## Summary

Working animals, mainly equids, camelids and bovids, are draught animals that perform transport and traction activities. In developed countries technological development has resulted in animal power being minimised, however, in developing countries most agricultural operations are still being conducted by animals, and animal welfare is a major concern. Inadequate knowledge and inappropriate attitudes and practices regarding the management and welfare of working animals are the main contributory factors to welfare problems. The paper highlights the situation of working animals in developing countries, especially those of equids in Africa and Asia and bullocks in India, which are examined as examples. There is much room for improvement in the welfare of working animals, via the provision of basic veterinary care, technical advice on health and husbandry, including foot care, improved design and maintenance of harnesses and other equipment, and the development of appropriate policies and legislation. The paper discusses the role of the World Organisation for Animal Health in addressing these issues.

## Keywords

Animal – Bovid – Draught – Equid – Poverty – Traction – Welfare – Working animal – World Organisation for Animal Health.

## Introduction

Working animals, for the purposes of this paper, are draught animals that perform transport and traction activities. They are mainly equids, camelids and bovids, with the majority in the developing world, and animal welfare is a major concern. The substantial role played by working animals in the lives of their owners and economically is largely unrecognised in cooperative development programmes and in particular with regard to the Millennium Development Goals concerned with poverty and hunger eradication, gender equality, maternal and child health and environmental sustainability.

Working animals are integral to many small farming systems, assisting directly with crop production, transportation and distribution of farm materials and harvested produce,

and rural trade in general. They save time and effort in households, mainly of women and children, by carrying water and fuel, and are engaged in wider activities such as water lifting, logging and land excavation. Working animals are also used for urban and rural transport of goods, in commerce and in industrial activities such as at brick kilns and construction sites. Animal power is a renewable energy source, particularly suited to family-level farming and to local transport, and it is generally affordable and accessible to smallholder farmers, who are responsible for much of the world's food production. Improving the health and welfare of working animals requires a range of practical approaches that must be grounded in the cultural and economic reality of the householders, farmers and traders who own and use them. It is also important to increase recognition among policy-makers of the critical links between working animals and livelihoods in order to ensure that policies promoting working animal welfare are enacted and implemented.

Integral to achieving such policy change is the further need to ensure that animals are recognised as indispensable to the lives of poor people, playing a part in alleviating human poverty. Support from research is required because at present insufficient data are available that demonstrate key interactions between animal welfare and productivity and animal welfare and livelihoods.

Veterinarians and other service providers are crucial to this process, but these parties often need to improve their own understanding of working animal welfare in order to have a greater effect within communities. They will then be able to use an evidence-based approach to enhance their influence at governmental and international levels.

## The role and importance of draught animals in developing countries

In 50 developing countries, which contain half of the total human population of the world, there is a heavy dependence on draught animals as an energy source. These animals are used for agricultural operations in 52% of the cultivated area of the world (1) as well as for hauling 250 million vehicles (2). About 400 million draught animals, by supplying power to agricultural production systems, may save power equivalent to about 20 million tonnes of petroleum per year. This situation is likely to continue for at least another 50 years (2).

Indeed, in India the use of working animals for agriculture and rural transport is increasing every year. There are also parts of Africa and Latin America where animal power is expanding and diversifying. In countries that are rapidly becoming urbanised as well as industrialised, e.g. Brazil, China, India, Mexico and South Africa, animal power remains very important. In these countries, although large-scale farms use tractors and long-distance transport depends on engine power, many small-scale farmers and local transporters continue to depend on animal power. For example, draught animals are usually the only power source available for use on small and marginal farms where cultivation often occurs in difficult terrains such as steep hills and wetland, and on arid/dry land. Draught animals are well suited to a range of agricultural operations where mechanical power units have not yet replaced manual labour, such that, for the small and marginal farms in India that contribute 83% of total farm produce (2), draught animals are the main source of motive power for farm operations.

In terms of transport, animals are important for carrying farm inputs (seeds, fertilisers and crop protection products)

and outputs (harvested crops and animal products). Also, ridden and pack animals and hauled vehicles facilitate the marketing of produce, stimulating local trade and production. Working animals may also contribute to food production through their milk, meat, fibre, manure and offspring.

For example, the draught animal power (DAP) of India's 100 million draught animals is estimated to be equivalent to 40,000 megawatts of electric power, equivalent to half the present generation capacity of India (2). At present, draught animals are being used to plough some 120 million hectares of farm land in India, representing 60% of total cultivable area. They also transport 25,000 million tonnes of freight per year, saving six million tonnes of diesel worth US\$750 million annually (2). About 70 million DAP units available in the country contribute about 26% of the total available farm power and about 32% of energy used in the rural sector in India (2). Draught animals provide the equivalent of about 31.5 megawatts of electrical power for the rural sector (2). Transport of material and human beings is one of the major problems in rural areas where the quality of roads is often poor. There are about 15 million carts in use in India, of which only 1.2 million are of an improved (appropriate weight, type and balance for the animal power used) type. Twelve million are rural based and three million urban based. About two-thirds of rural transportation in India is still carried out by bullock carts (2).

## The contribution of working animals to livelihoods: the example of working equids

The importance of domestic livestock, such as sheep, goats and cattle, to the livelihoods of the poor is clear, however, less evidence is available on the contributions of working animals to livelihoods. Working equids include donkeys, horses and mules. It is estimated, through informal research by the Brooke in nine countries, that between five and 20 people depend on every working equid (3). Results from a recent study in Ethiopia revealed the important political, economic and social contribution that equine ownership makes to households (4), but, unlike livestock, the economic value of working equids is more difficult to quantify, particularly regarding their use in subsistence farming systems.

Working equids support an estimated 300 million people globally (5), often in the most marginalised communities. In rural communities they are used in subsistence farming systems to carry water, manure, firewood and animal fodder and, in the case of pastoral people, to transport

whole households. Equids are used throughout the range of agricultural activities, from ploughing and sowing to harvesting and threshing, and for the transport of agricultural produce.

In both rural and urban areas working equids are a major means of transport, both as ridden and pack animals and through pulling carts. They transport goods to and from markets, farm inputs to farmsteads, children to school, and the sick and women in labour to clinics and hospitals. In the export of high-value products such as coffee and chocolate, working animals, including equids, are often the first link in the transport chain, moving goods to district and regional hubs for onward motorised transport. In Guatemala, for example, 85% to 90% of all coffee produced is transported on the back of a pack animal before export (Sapon, 2011 personal communication).

Commercially, these animals may be used as taxis or rented out to small businesses. Some businesses, such as building companies and brick manufacturers, may own or rent large numbers of working equids. For example, hotels in Cairo have been built with bricks that were transported by donkey cart 20 km from the brick kilns of Helwan (5). A recent study on the contributions of working donkeys, horses and mules to human livelihoods in Ethiopia found that 56% of households surveyed kept donkeys mainly for pack services (to generate income and for homestead use), 26% for cart use (to generate income), and 14% for pack use but exclusively for homesteads (4). Many working equids are used in the tourist trade, where they transport food and drinks to hotels and provide riding or carriage services for tourists and pilgrims.

## Welfare challenges

The causes of poor welfare outcomes frequently identified for working animals include poor nutrition, poor harness design and use, overwork and inappropriate management practices, such as beating and working animals at too young an age. Additional related problems include wounds, lameness, colic in equids and preventable infectious disease. Initiating factors are usually multi-layered. They include traditional or cultural beliefs and economic constraints. Cultural factors can include traditional beliefs in harmful practices such as nostril-slitting and firing (burning part of the animal's body with red-hot metal in the belief that it has medical benefits). Economic factors commonly constrain marginalised communities from accessing resources such as feed and water, good harnessing and carts, quality farriery, appropriate shelter, and health care for their working animals, which all have a direct impact on animal welfare.

Inadequate knowledge and inappropriate attitudes and practices in the management and welfare of working

animals can also contribute to welfare problems. This is especially so where new communities who do not have a tradition of working with draught animals, begin to do so. Current expansion of donkey ownership, for example, may be to areas where equine management is not part of the traditional culture. The association of working animals with low socio-economic conditions and underdevelopment does not help the poor status of donkeys in particular. Understanding such underlying factors can guide the selection and use of both animal-based and resource-based indicators of welfare status for assessing the welfare benefits of corrective initiatives.

As evidenced above, the challenges to good welfare in working animals are numerous. However, it is important to be aware of the wider welfare frameworks that do not just encompass physical health. A framework commonly used, which includes both physical and mental aspects, involves the management recommendations that are allied to the Five Freedoms developed by the Farm Animal Welfare Council (6). The management of animal welfare first requires the means to assess it. Thus, objective welfare assessment has remained an area of concern and considerable interest, and ways to develop practical assessment tools, even in conventional farming systems, are increasingly being explored (7, 8, 9).

Of course, animal welfare assessment usually references welfare standards, and it would be beneficial to develop such standards for working animals. Importantly, these standards should leave scope for further modifications and improvement based on research and field experience. The Brooke has developed a tool for working equids based on these principles (5). The tool aims to provide baseline data at population level using a collection of animal-based indicators and to measure the impact of targeted interventions on welfare. Situation-specific indicators, both animal-based and resource-input-based, are commonly used and the participation of animal-owning communities is encouraged to empower their members to identify and measure changes in their animals' welfare themselves (10).

## Welfare challenges of working animals: examples from India

The welfare of animals is often very poor in developing countries. In India, for example, about 120 million bullocks, camels and donkeys are used for transporting goods and ploughing (2). The equipment used for ploughing and for harnessing animals to transport vehicles is often badly designed and inflicts heavy stress, physical strain and pain on the animals.

Among working animals, bovids experience considerable suffering. Seventy million draught cattle are idle for ~200 days a year (2). During non-working days they are often fed inadequately, both with regard to the quantity and quality of the feed. This weakens them, and 80% of such cattle and buffaloes eventually die due to under- or malnutrition and disease (2). When such debilitated animals are put to work they are unable to perform, which leads to them being beaten or goaded with sharp implements to make them work.

Overwork can also be a significant issue with seasonal activities. For example, cultivation of rice paddies, which are rain fed, often leads farmers to work their animals for many hours each day, the average work day during the rainy season being ~7 h long (11). On the other hand, during summer, the farmers generally use their animals in early morning or late afternoon to spare them from excessive heat loads (11).

Climatic conditions also affect the capacity of bullocks to engage in sustained work. Crossbred bullocks are capable of working in tropical/subtropical conditions, but fatigue develops earlier than in local breeds of bullocks in hot dry conditions (12). For example, crossbred bullocks could not work for 3 h continuously because of the onset of fatigue, whereas local breeds could work at an average speed of 3 km/h for six continuous hours (13).

Technological and managerial solutions, which increase the productivity of the system and concurrently enhance animal welfare, need to be explored and advocated. Design improvements to agriculture implements and bullock carts would reduce stress, physical strain and pain (14). As an example, increasing the contact area of traditional yokes/harnesses used on draught animals would reduce friction and pressure injuries and thereby improve the efficiency of conversion of animal power into draught power (11), and at the same time the welfare of the animals. Also, the management approaches for draught animals should ensure that they are well cared for and used in a humane manner which ensures good health, takes account of minimum and maximum ages before and after which the animals should not be worked, and precludes overloading and overwork (15).

## Policy/legislation

Working animals are critically important to the lives of many poor and marginalised communities, although most policy-makers appear to be unaware of this. It is therefore important to increase recognition at local, national and international levels of the contributions of working animals to the livelihoods of the poor. It is anticipated that this

could encourage the development of animal welfare policies and legislation (including standards and surveillance and enforcement provisions) designed to ensure that working animals are cared for and managed humanely. Allied to this was a recent electronic consultation by the Food and Agriculture Organization of the United Nations (16) and the Brooke. The consultation provided a forum for a variety of participants to share experiences of working animal issues and to exchange information, including information on existing policies and legislation and any gaps in the regulations. Finally, in addition to its ongoing engagement with Veterinary Services, it is suggested that the World Organisation for Animal Health (OIE) should seek to highlight to the governments of its Member Countries, as well as to financial donors, the economic benefits that working animals provide and the value of investing in their health and welfare.

## Conclusions

There is much room for improvement in the welfare of working animals, via the provision of basic veterinary care and technical advice on health and husbandry, including foot care and the design and maintenance of harnesses and other equipment. The welfare of animals used in transport and traction in poor communities, in both rural and urban settings, should be addressed as a matter of high priority due to the contribution that these animals make to livelihoods and in light of the urgent need to improve the welfare of these animals. The OIE is well placed to raise the profile of working animals among governments and national Veterinary Services as a strategy that can help alleviate poverty and lead to action designed to improve the health and welfare of these animals. It is in this context that the Animal Welfare Working Group (AWWG) of the OIE is in the process of setting up an *ad hoc* group to prepare draft OIE Guidelines and Standards for the Welfare of Working Animals, which, after the approval of the AWWG and World Assembly of Delegates, would then be incorporated in the OIE *Terrestrial Animal Health Code* for Member Countries to implement. The OIE could also encourage research that could demonstrate the economic contribution of working animals and the cost/benefit of programmes to improve animal health and welfare.



## La gestion et le bien-être des animaux de travail : les problèmes identifiés, les solutions envisagées et les perspectives d'avenir

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### Résumé

Les animaux de travail sont principalement des équidés, des camélidés et des bovidés de trait utilisés pour le transport et la traction animale. Dans les pays développés, l'énergie animale n'est pratiquement plus utilisée en raison des progrès technologiques ; en revanche, dans les pays en développement, la plupart des tâches agricoles sont toujours réalisées à l'aide d'animaux, de sorte que le bien-être animal y est un sujet important de préoccupation. Des connaissances insuffisantes et un comportement et des pratiques de gestion irrespectueux du bien-être des animaux de trait sont les principales causes des problèmes constatés. Les auteurs exposent la situation des animaux de trait ou de bât dans les pays en développement, en s'attachant plus particulièrement à l'exemple des équidés en Afrique et en Asie et des bœufs en Inde. Il y a une grande marge d'amélioration en la matière, ce qui peut passer par la fourniture de soins vétérinaires de base et de conseils sur la santé animale et les techniques d'élevage, en particulier le soin des pieds, par une meilleure conception et entretien des harnais et autres matériels et par le développement de politiques et de législations appropriées. Les auteurs examinent le rôle joué par l'Organisation mondiale de la santé animale pour faire évoluer ces questions.

### Mots-clés

Animal – Animal de trait – Animal de trait et de bât – Bien-être animal – Bovidé – Équidé – Organisation mondiale de la santé animale – Pauvreté – Traction animale.



## Tratamiento y bienestar de los animales de trabajo: detección de problemas, búsqueda de soluciones y previsiones de futuro

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### Resumen

Los animales de trabajo, principalmente équidos, camélidos y bóvidos, son animales de tiro que realizan labores de transporte y tracción. Aunque en los países industrializados el desarrollo tecnológico ha reducido a su mínima expresión el uso de la fuerza animal, en los países en desarrollo los animales siguen interviniendo en la mayoría de las labores agrícolas, por lo que su bienestar es un tema de gran importancia. La falta de conocimientos y las actitudes y prácticas inadecuadas en materia de tratamiento y bienestar de los animales de trabajo son los principales factores que ocasionan problemas de bienestar. A modo de ejemplo, los autores exponen la situación de los animales de trabajo en los países en desarrollo, en particular la de los équidos en África y Asia y los bueyes en la India. Aún hay mucho margen para mejorar el nivel de bienestar de los animales de trabajo, por ejemplo con la prestación de atención veterinaria

básica y de asesoramiento técnico sobre cuestiones sanitarias y zootécnicas (como el cuidado de los pies o un mejor diseño y mantenimiento de los arneses y demás arreos) y con la formulación de políticas y leyes adecuadas. Los autores examinan la función que a este respecto incumbe a la Organización Mundial de Sanidad Animal.

#### Palabras clave

Animal – Animal de trabajo – Bienestar – Bóvido – Équido – Organización Mundial de Sanidad Animal – Pobreza – Tiro – Tracción.



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