

# The importance of horses, mules and donkeys in modern Cuba

by

**Paul Starkey<sup>1</sup>, Arcadio Ríos<sup>2</sup>, Humberto Valdés<sup>3</sup> and Pedro Sotto<sup>2</sup>**

<sup>1</sup> *Animal Traction Development and University of Reading,  
Oxgate, 64 Northcourt Avenue, Reading RG2 7HQ, UK*

<sup>2</sup> *Instituto de Investigaciones de Mecanización Agropecuaria (IIMA),  
Apartado postal 19240 La Habana, Cuba*

<sup>3</sup> *Grupo IT, Centro de Investigación y Desarrollo del Transporte  
Apartado postal 17029 La Habana, Cuba*

## Abstract

*The Cuban Institute of Agricultural Mechanisation (IIMA) of the Ministry of Agriculture coordinated a survey of animal traction in Cuba between 1999 and 2001. Five universities and the Ministry of Transport contributed to the study. This paper presents relevant background information and some of the findings relating to horses, mules and donkeys.*

*Cuba has had a long tradition of using horses for riding and for urban and rural transport. The national population of horses has been in decline for some time and now stands at about 400,000. Recent trends suggest resurgence in the use of horses for pulling carts and carriages, and the population may stabilise or even grow. Mules (30,000) are mainly used for riding and packing in the mountain areas (one quarter of the country is hilly). There is quite a small population of donkeys (6000) that are mainly used for breeding mules.*

*Since 1990, and the break up of the socialist trading bloc, Cuba has been experiencing special economic conditions, with problems relating to the cost and/or availability of fuel and spare parts for motor vehicles. This led to an increase in the use of horses for both rural and urban transport. Private operators provide public transport in many towns using horse-drawn buses and carriages. The government regulates these, and licence conditions require animals to be inspected. There are limits to the permitted loading of horse-drawn passenger and freight transport. Pack transport in the mountains is unregulated, but overloading does not appear to be a problem. Although some animals used for urban transport are thin, animal health and husbandry is generally good, with excellent veterinary services. Participatory work with owners to find affordable ways of improving nutrition is recommended. The special economic conditions affect the manufacturers of horse carts (who purchase materials using foreign exchange) and animal support services (blacksmiths, farriers and veterinarians) who reported the scarcity of some inputs. Future investigations may include the use of horses for light agricultural work and greater use of donkeys.*

## Introduction and methodology

Animal traction plays a significant role in the rural economy of Cuba and it also contributes towards urban transport in several provinces. The use of animal power will remain important for small-scale farmers and transporters in the Caribbean and Latin American regions for the foreseeable future. There was a time when the technology was ignored, as planners and institutions thought animals would be rapidly replaced by motor power. There is now significant interest in animal power in Cuba and elsewhere, but progress has been limited by the lack of institutional understanding concerning this neglected field and the relative isolation of professionals working in this area. There is potential to improve systems for using animal draft power in Cuba, so benefiting the economy, the people (men, women and children) and the work animals themselves.

This paper highlights the role of equines and is based on a recent initiative to learn about the current animal traction situation in Cuba, the limiting factors and potential for improvement. A survey of animal traction in Cuba was undertaken from 1999 to 2001. This was coordinated by the Instituto de Investigaciones de Mecanización Agropecuaria (IIMA), with support by the British Department for International Development (DFID). Dr Arcadio Ríos (IIMA) led the team, with assistance from Paul Starkey of Reading University and Brian Sims of Silsoe Research Institute, UK. The aim of the programme was to understand and describe the present systems of using animal power in Cuba, to identify constraints and potential for greater productive and social benefits (affecting men, women and children), to address key issues and improve efficient use of work animals in Cuba. The research was based on a participative methodology (Starkey, 2002) and was undertaken by IIMA, Group IT (Ministry of Transport) and by the Agricultural University of Havana, the Central University of Las Villas and by the Universities of Pinar del Río, Ciego de Avila and Granma. This paper is based on a synthesis of the study (Starkey and Sims, 2002), with information on the use of equines coming mainly from the work of Ríos (2002), Valdés (2002), Sotto, Wong and Armada (2002) and Cuesta (2002). Further information on this research and copies of all relevant papers are available on the website: <http://www.recta.org>.

## The Cuban context

### Agro-ecological environment and farming systems

Cuba is a Caribbean archipelago, located between Mexico, Florida, the Bahamas, Haiti and Jamaica. The 1600 islands total about 110,000 square kilometres. The main island is about 1250 km long and varies from about 30 to 190 km wide. The Cuban population is 12 million, of which more than 80% is concentrated in urban areas. The provinces are shown on Map 1.

Map 1. The Provinces of Cuba



Most (77%) of the land is flat or undulating and below 100 m above sea level. This land is used for sugar production (45% of the agricultural area), ranching (35%), rice (6%), citrus (5%) and other crops. The east of the country is quite mountainous, with the *Sierra Maestra* range rising to about 2000 metres. Overall about one quarter of the country is hilly (over 100 metres in altitude). The tropical climate has a mean annual rainfall of between 1200 and 1500 mm, with most rain falling between May and October. The mean temperature is about 26°C.

Agriculture is crucial to the Cuban economy, employing about one fifth of the workforce and providing more than 50% of foreign exchange earnings. Sugar is particularly important, in terms of cultivated area and export sales. Since colonial times, agriculture has been dominated by large-scale enterprises, with a relatively small proportion of the land being used as small-scale family farms. The large private estates of the 1950s were converted to state farms in the 1960s. Then, in the 1990s, many of these were put under the control of their workforces as Basic Units of Cooperative Production (UBPCs). The farming industry now has five main organisational categories, of which only one is in the state sector:

- Basic Units of Cooperative Production (UBPCs), with 42% of farmed area

- State agricultural production farms, with 33% of farmed area
- Agricultural Production Cooperatives (CPAs) , with 10% of farmed area
- Small-scale family farms, with 10% of farmed area
- Credit and Service Cooperatives (CCSs), with 5% of farmed area

### **Special economic period**

The situation with animal power in Cuba has to be seen in the context of the existing economic situation, which has become known as the ‘special period’ (*el periodo especial de tiempo de paz*). Until 1990, around 85% of Cuba’s trade was with the socialist countries of USSR and Eastern Europe. With the disintegration of the Comecon mutual bloc, Cuba was isolated from its main suppliers and markets. The situation was made worse by the economic blockade imposed by the USA. As Cuba now had to pay in foreign exchange for its imports, including petroleum products, there was a severe shortage of foreign exchange. This was exacerbated by the lack of investment capital, credit and trade from the United States, which was geographically close but economically and politically separated. There were initially major problems in 1990 as the supplies of fuel, spare parts and imported items declined rapidly. Valdés (2002) and Ríos (2002) provide further details of this economic period.

The ‘special period’ continues, although the overall economic situation is improving. Fuel and imported items are much more available, but often at a price determined mainly by world market forces and foreign exchange rates. The Cuban economy has some elements trading in US dollars and others in local pesos. Goods and services, such as fuel, fast transport and computer supplies are generally available in the US dollar sector. In the local peso sector, commodities are less readily available. Although US dollars can be readily bought, they are very expensive for most organizations and individuals that are primarily operating in the peso economy. This includes most farmers, transporters as well as government institutes and universities. While there is increasing access to small amounts of foreign exchange by certain farmers (notably tobacco farmers) and institutions, most transactions depend on the peso-based economy, with its on-going problems of shortages.

The conditions of the ‘special period’ will inevitably affect the future of animal power. Any initiatives to manufacture horse-drawn implements or new designs of transport devices are likely to require foreign exchange to purchase raw materials. If they are to be sustainable, they will have to sell in the US dollar economy to gain replacement foreign exchange. In such circumstances, and at present prices (in pesos) for produce, smallholder farmers (other than tobacco farmers) are unlikely to be able to afford newly manufactured implements. This situation is already occurring in the manufacture of horse-drawn carriages in Bayamo, where the local workshops have to sell in dollars in order they can buy materials in dollars. Cuban farmers and transporters are very resourceful, and in the medium-term they will adapt to the new economic situation. However, in the short-term, there are likely to be further serious problems for farmers, transport operators and local manufacturers.

### **Animal power in Cuba**

The national herd comprises about 4.7 million cattle, 400 000 horses, 30 000 mules, 26 000 buffaloes and 6000 donkeys. Of these about 700 000 animals are used regularly for work. Work animals are used in all types of farming enterprises, but their importance is particularly great in the family farms and production cooperatives (CPAs) that together produce 40% of Cuba’s domestic food production.

The main work animals in Cuba are oxen and horses. Oxen are used mainly for agricultural tillage and the on-farm transport of goods. Horses are transport animals, used for riding and for rural and urban transport. Other important work animals include mules that are mainly used in the hilly areas, for packing and riding, as well as in flatter rural and urban for pulling carts. Donkeys are mainly used to breed mules, and light transport in the mountains. A small

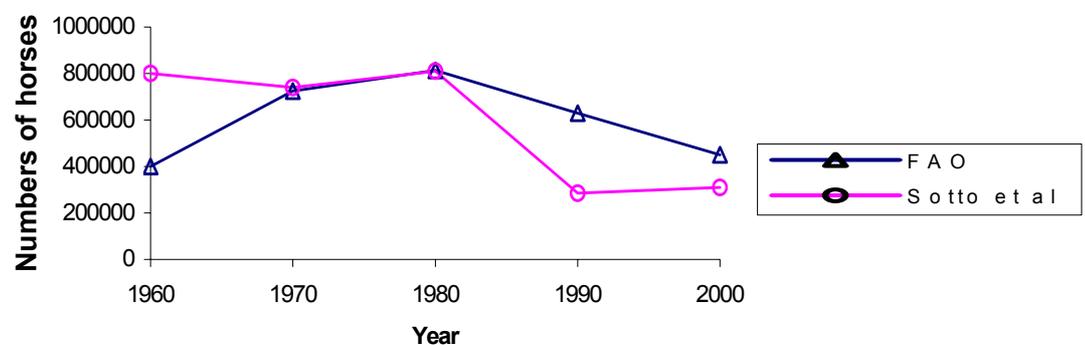
number of water buffaloes used to be employed for carting and yard scraping. A few goats pull carts to carry children for entertainment.

## Horses

Most horses in Cuba are ridden for work (such as ranching) and rural transport. Some are ridden for recreation or sport. A few horses are used as pack animals in the mountain areas.

Many horses are used for rural or urban transport, pulling two-wheel carts (for passengers and freight) and four-wheel wagons, carriages and buses. Valdés (2002) discusses their importance for public transport, reporting that in 2000 there were 16 000 registered service vehicles pulled by horses or mules. The private sector is responsible for the almost all transport services using equines and it is private individuals (rather than companies) that dominate the sector. In some towns, including Bayamo in Granma, traditional horse-drawn carriages, with large wooden wheels, provide urban public transport. In other towns, including Pinar del Rio, horse-drawn buses are equipped with steel wheels with solid rubber or pneumatic tyres.

**Figure 2. Number of horses in Cuba, 1960 to 2000**



Sources: FAO, 2001; Sotto, Wong and Armada, 1999

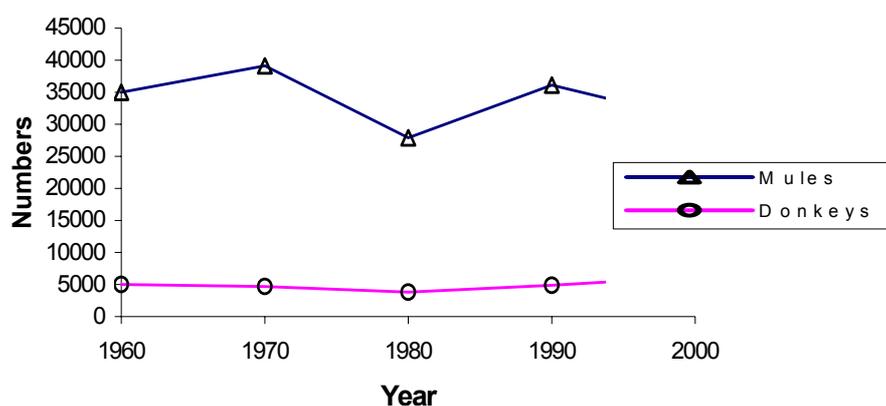
The population of horses has been declining in recent years (Figure 2), although the use of horses for transport has been increasing. There have been some discrepancies in the estimates of the horse population in the past forty years (see Figure 2). FAO figures (based on data supplied by Cuba) suggested a major increase between 1960 and 1980, while the data presented by Valdés (2002) and by Sotto et al (1999), indicated that the horse population was fairly stable at this time. All estimates suggest that there was a large decrease in the horse population in the 1980s. This can be explained by the increasing access to motorised transport at this time and on-going urbanisation. The estimates presented by FAO and Valdés suggested the reduction in horse numbers was continuing during the 1990s, while those of Sotto et al implied there was a slight increase in numbers. All estimates suggest the number of horses has halved in the past twenty years. There may have been official or unofficial culling of surplus horses in response to limited feed resources for horses and the market demand for meat. The survey did not find evidence of a significant shortage of horses. Nevertheless, supply and demand factors for transport horses need to be monitored, to ensure continued the horse population can supply the numbers of animals required in the coming years.

Horses are not generally used for tillage. Sotto, Wong and Armada (1999) reported trials using horse-drawn implements and discussed options for increasing the agricultural role of horses. With the availability of tractors and oxen for the heavier operations (such as plowing), there would appear to be a potential role for horses for complementary lighter work (such as seeding and weeding) and for light tillage in marginal lands (notably in hills). This is likely to be the subject of a collaborative investigation in the coming years.

## Mules and donkeys

There are about 30 000 mules and 6000 donkeys in Cuba. The mules are used mainly in and around the hilly areas, for riding, for pack transport and for pulling carts. The donkeys are maintained to breed mules and some are used for pack transport and riding in and around the mountains. There are only a few donkey carts in use. The populations of mules and donkeys have been relatively constant over the past forty years, with a slow increase in the number of donkeys (Figure 3).

**Figure 3. Numbers of mules and donkeys in Cuba, 1960 to 2000**



Source: FAO, 2001

### Mules

The 30 000 mules in Cuba are mostly found in the *Sierra Maestra* mountains in the east, the Trinidad range in the central area and in the hills of Pinar del Rió. Here they play a vital role supplying isolated farms and communities, and carrying produce, notably the coffee harvest and palm fruits. Mules may be ridden or used as pack animals. Mule trains are used at the time of coffee harvest and traditional competitions are staged to see how quickly a person can load, lead and unload a mule train. While horses are the preferred riding animals in most of Cuba, in the mountains people appreciate the sure-footedness of mules. Away from the hills small numbers of mules are used to pull carriages (eg, Bayamo), buses and passenger wagons (eg, Pinar del Rio), two-wheel carts (eg, Holguín) and four-wheel freight wagons (eg, Havana Province). Horses are more common in all these situations (because they are widely available), but mules are appreciated for their robustness and long working life (twenty years is commonly cited).

During the survey, some people suggested that there was a shortage of mules, and that they were not easy to buy. However, this was not a universal problem. Mules are bred by cooperatives and individuals and on specialised breeding stations. Cooperatives and individuals reported a relatively high reproductive rate, implying that a mare put with a donkey would produce a young mule almost every year. For example, five mules a year are 'normally' produced from five mares at the 'Republica de Chile' Cooperative (CPA) in Vinales, Pinar del Rió. These horses were used during the year, and were not retained solely for breeding. This is in contrast to the specialised mule-breeding stations, which maintain large numbers of horses that do nothing except breed replacement horses and mules. Despite this specialisation, the reproductive rate on the mule breeding stations can be low. For example at the Granja Mular Equino, at San Juan de Guacamaya in Pinar del Rió, only 15-20 mules are produced each year from 66 mule-breeding mares, despite the presence of three veterinary staff and almost 100 labourers (who also have roles in mixed farming and food production). The low reproductive rate may be related to poor animal nutrition, due to lack of irrigation and resources. The effects of centralised planning, with insufficient responsiveness to investment needs and market opportunities may also have played a role. Other mule

breeding stations appear more efficient, including the Don Quixote enterprise in Manicaragua, Santa Clara, which has a permanent exhibition relating to mule breeding and management.

### *Donkeys*

The population of donkeys in Cuba is low (about 6200), but has been rising in recent years. Donkeys are used to breed mules and for light transport operations, particularly in the mountain areas. Valdés (2002) noted that about 40% of donkeys are in the state sector. This is high, given that small numbers of donkeys are needed to breed mules and that donkeys are particularly suited to 'family level' transport tasks. Some donkeys are maintained for immunology studies and vaccine production in Granma. In Pinar del Rio, the donkey improvement programme (Empresa Pecuaria Genética Camilo Cienfuegos at Consolación del Sur) had about 100 donkeys in 2000, including 40 breeding females and one large stud donkey from Canada. The aim of this programme is to distribute large donkey jacks to produce larger mules.

Most donkeys are used in the eastern provinces, in and around the *Sierra Maestra*. They are mainly used for pack transport and for riding. There is no tradition of using donkey carts, although a few simple ones have been made. Donkeys cost around 500 Pesos (US\$ 20). Although this is cheaper than mules (1500 Pesos) or horses (2000 Pesos), the price differential is not as great as in many parts of the world, where donkeys are relatively cheap animals.

The number of donkeys in Cuba is much lower than in neighbouring countries (Haiti, 215 000; Dominican Republic, 155 000; Jamaica, 26 000; Mexico, 3 200 000). In these countries, donkeys are more widely used for rural transport, including the collection of water and wood, marketing produce, trading and riding. Compared with neighbouring countries, donkeys may be less needed in Cuba, due to high levels of regular full-time employment for men and women, urbanisation, piped water, electrification, cooking with kerosene and centralised trading and marketing systems. However, lack of rural transport is a serious constraint in Cuba, and there are many situations where donkeys could be usefully employed to save time, to reduce human drudgery and to increase market efficiency. This is particularly important for the small-scale private farmers and rural households. Donkeys could also be used for light cultivation work in hilly areas and small farms.

Existing users of donkeys are very positive about their advantages, but other people (including government officials and the animal power research team) know little about donkeys. Cubans tend to ignore the potential for donkeys, on the grounds of 'it is not our tradition' and the low status of donkeys relative to mules, horses and oxen. This psychological constraint needs to be overcome, so that the use of donkeys can be considered as a serious option that is highly appropriate in some situations.

### **Animal health and welfare**

Animal diseases or parasites were seldom cited as significant constraints during the recent survey. Cuba has good animal health services that are readily accessible. When people have problems with their work animals, they contact their local veterinary clinic, and treatment is arranged speedily and free-of-charge. There have been reports of declining availability of medicines and equipment. Lack of raw materials and coal for the forges has affected farriers.

Recent legislation has incorporated animal welfare into the licensing arrangements for public transport services. Valdés (2002) gives details of several Resolutions of the Ministry of Transport made in 1997 and 1998 that established the need for annual licenses to operate horse-drawn carriages and carts. In order to obtain a license, operators have to produce:

- Valid certificate confirming ownership of the animal(s), issued by the local Office of Livestock Control.

- Valid certificate of the health of the animal(s) to be used, accrediting their vaccination and good physical state, issued by the Municipal Office corresponding to the Institute of Veterinary Medicine.
- Valid certificate of the technical inspection of the carriage or cart, issued by a qualified person, which accredits its suitability for transport.
- Valid civil responsibility insurance policy.

These regulations, with enforced annual inspections of the animals and vehicles pulled should help to maintain high standards. The certificate of ownership should help to reduce the risk of animal theft.

Other regulations should protect animals in the way they are used. These oblige operators to:

- Use only equines between three and twenty years old for the transport of freight or passengers.
- Transport a maximum of eight people or 500 kg of cargo for each horse or mule used.
- Keep up-to-date certificates of the health of the animals and the technical inspection of the vehicles.
- Charge official tariffs, adhere to regulations and obey traffic rules.

Enforcement of regulations varies from place to place. During the survey, some examples were seen of loading regulations being broken (horse-drawn vehicles with more than eight people per horse). A single example was seen of operators comparing the strength of their horses by making them pull a carriage with blocked wheels. Some transport horses are thin, and lack of adequate feeding can be a constraint, particularly in urban areas. However, in general, animals are well treated, and during the survey, no other cases of serious cruelty or neglect were seen or reported. Animal husbandry and welfare appears high, relative to most other countries.

### **Attitudes to animal traction**

In rural areas of Cuba, there is a strong and proud tradition of horse riding. Horse riding is essential for the supervision of ranches, which cover about 35% of the agricultural land. However, with high levels of urbanisation and recent changes within the economy, only a minority of Cubans now ride horses. In the period from 1960 to 1990, people increasingly thought in terms of motorised transport, with equines used for recreation, ranching and mountain transport, and for rather 'quaint' horse-drawn carriages in a few towns. At this time the use of equines was considered rather 'old fashioned' and was neglected in national policy and at all levels of education.

After 1990, the Cuban government placed new emphasis on animal power. Although animal power enjoys an improved image, there remains scepticism about its long-term future. In the rural areas, farming people generally thought the use of oxen and equines will continue to be important in the foreseeable future, and may even grow. However, in towns and universities, many people assume that when the United States blockade is finally lifted and the economy really thrives, equines will cease to be important for transport, except in special situations (ranching and mountains). The implication of this is that it may not be necessary to invest in new animal power technologies, as these will not be used for long. This psychology is in line with a common, prevailing attitude in many parts of the world, all influenced by the power of the images of 'modern' agriculture and society from the United States. This negates the evidence from other countries (and from the Amish of the USA) that animal power will remain a valuable complementary technology that can continue to contribute profitably to modern agriculture.

### **Conclusions**

There has been a long history of using horses and mules in Cuba. Mules are mainly used for riding and packing in the mountains, while horses have an important role in rural transport, particularly in the ranching sector. The recent special economic period has led to a resurgence

of the long-standing tradition of using horse-drawn carriages and buses for urban transport. Individual private operators provide most public transport services that use horses or mules. The government regulates these transport operators, and various provisions in the licensing process (ownership, health certification, vehicle condition) and operating rules (maximum load per animal) help to ensure the welfare of the animals.

No one doubts that mules will continue to be important for mountain transport, and horses will provide vital rural transport, particularly in the ranching sector. The long-term future of urban transport with equines is less clear, but in present economic conditions horses provide an invaluable contribution to public transport and refuse collection. The production of new horse carriages and buses is constrained by the need to purchase materials using foreign exchange.

The use of donkeys for transport is very small, compared to neighbouring countries. Similarly, the use of horses for field operations is minimal, and below that elsewhere in Latin America. There is scope for participative investigations in these areas.

### Acknowledgements

*The observations and findings reported here were obtained as part of a multidisciplinary project. The authors would like to thank the British Department for International Development (DFID) for funding the work, the Cuban institutions that coordinated and implemented the work, and their other colleagues who were part of the research team. These included: Heriberto Bouza González and Dr. Jesús Cárdenas Rubio of Instituto de Investigación de Mecanización Agropecuaria; Dr. Raymundo Vento Tielves and Ing. Joel Pacheco Escobar of Universidad de Pinar del Río; Dr. Felix Ponce Ceballos of Universidad Agrícola de La Habana; Dr. Miguel Rodríguez Orosco and Ridel Espinosa la Rosa of Universidad Central Martha Abreu de Las Villas; Dr. Raúl Pérez Companioni (deceased) and Ing José Alberto Alfonso Pardo of Universidad de Ciego de Ávila; Ing Daniel Font Rodríguez and Dr M V Armando Cuesta Guillen of Universidad de Granma and Brian Sims of Silsoe Research Institute, UK.*

### References

- Cuesta Guillen, A F, 2002. The donkey as a work animal in Granma Province, Cuba. In Starkey P and Sims B (eds). *Animal traction in Cuba: situation, needs and potential*. Instituto de Investigaciones de Mecanización Agropecuaria (IIMA), La Habana, Cuba. (in preparation). Available at: [www.recta.org](http://www.recta.org)
- FAO, 2001. FAO Statistical Database Website. Food and Agriculture Organization, Rome, Italy. (Home page: <http://www.fao.org>; FAOSTATS: <http://apps.fao.org/cgi-bin/nph-db.pl?subset=agriculture>; Donkey and other equine figures: <http://apps.fao.org/lim500/nph-wrap.pl?Production.Livestock.Stocks&Domain=SUA>).
- Ríos Hernández A, 2002. Animal traction in Cuba: an historical perspective. In Starkey P and Sims B (eds). *Animal traction in Cuba: situation, needs and potential*. Instituto de Investigaciones de Mecanización Agropecuaria (IIMA), La Habana, Cuba. (in preparation). Available at: [www.recta.org](http://www.recta.org)
- Sotto Batista P, Wong Barreiro M y Armada López M E, 1999. *Équidos de trabajo: manual*. Asociación Cubana de Producción Animal (ACPA), Habana, Cuba. 46p.
- Sotto Batista P, Wong Barreiro M and Armada López M E, 2002. The use of equids for agricultural work in Cuba. In Starkey P and Sims B (eds). *Animal traction in Cuba: situation, needs and potential*. Instituto de Investigaciones de Mecanización Agropecuaria (IIMA), La Habana, Cuba. (in preparation). Available at: [www.recta.org](http://www.recta.org)
- Starkey P, 2002. Rapid appraisal methodologies for animal traction. In Starkey P and Sims B (eds). *Animal traction in Cuba: situation, needs and potential*. Instituto de Investigaciones de Mecanización Agropecuaria (IIMA), La Habana, Cuba. (in preparation). Available at: [www.recta.org](http://www.recta.org)
- Starkey P and Sims B, 2002. Animal traction in Cuba: an overview of survey results, issues and opportunities. In Starkey P and Sims B (eds). *Animal traction in Cuba: situation, needs and potential*. Instituto de Investigaciones de Mecanización Agropecuaria (IIMA), La Habana, Cuba. (in preparation). Available at: [www.recta.org](http://www.recta.org)
- Valdés Ríos H, 2002. Public transport services using animal power in Cuba. In Starkey P and Sims B (eds). *Animal traction in Cuba: situation, needs and potential*. Instituto de Investigaciones de Mecanización Agropecuaria (IIMA), La Habana, Cuba. (in preparation). Available at: [www.recta.org](http://www.recta.org)