



University of Port Harke



The use of Donkeys, Horses and Mules in the former Ciskei region of the Eastern Cape South Africa



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**THE USE OF DONKEYS, HORSES AND MULES IN THE FORMER CISKEI
REGION OF THE EASTERN CAPE**

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Front Cover: The photographs on the front cover are of working equids in Eastern Cape Province, South Africa and were taken by Dr R.A. Pearson.

ABSTRACT

Draught animals continue to play an important role in the communal farming areas of South Africa such as the former black homeland of Ciskei which is now part of Eastern Cape Province. In addition to oxen, donkeys, horses and occasionally mules are used for tillage and transport purposes. This report describes the agricultural background of the Ciskei Region and reviews the past use of equids in South Africa. It then describes how a survey was carried out to examine the present day employment of equids in Ciskei and to identify constraints to their more efficient use

The survey results indicate why some people choose equine draught animals and what roles they perform. It was found that many people prefer horses and donkeys to oxen because they are easier to manage in small areas and require less labour. Donkeys are also a very cheap power source often enabling very poor people to make a living by ploughing and carting for others. The demand for mules and heavy horses is assessed. Other aspects of husbandry, such as training, feeding, breeding and hoof-care are also covered, as are veterinary issues like castration, parasite control and disease problems. Veterinary services were seldom found to be available. The types of equipment and harnesses used are also described. Some alternatives are discussed and possible improvements are suggested.

It is concluded that equids still make a major contribution to the well-being of many rural families, just as they have done in the past. However poor harnesses, heavy equipment, poor veterinary services and limited feed resources all restrict the efficiency with which they can be employed. Some recommendations are made for education and extension.

1. INTRODUCTION

Like many parts of the world the new post-apartheid South Africa faces problems with land degradation, water shortages, overgrazing, rural poverty and an ever-increasing population, all of which lead to increased resource conflicts, particularly in the former black homelands. Despite the perception of South Africa as a 'developed' country, there is a marked contrast between rich and poor areas. Former homelands such as Ciskei and Transkei compare with the poorest countries in Africa in terms of soil erosion, low crop yields and low livestock productivity. It is therefore important to ensure that the best use is made of all resources including draught animals.

In developing countries draught animals continue to play a vital part in enabling poor farmers to make a living. Many people in both rural and urban areas depend on animals for transport. The use of draught animal power is often a more appropriate option for small-scale agricultural enterprises than the use of tractors which, in addition to being expensive to purchase, also require spare parts, imported fuel and skilled mechanics to keep them in good working order. Draught animals can be fed using local resources and do not use up valuable foreign currency. They breed their own replacements and may also be of value for milk, meat and leather production.

There has been a long tradition of using working animals in South Africa but previous government policy was strongly opposed to their use. Subsidised tractor schemes were introduced but these proved to be uneconomical for smallholders after the subsidies were stopped. Most farmers went on using draught animals either on their own or in combination with tractors and this is still the case today. Nevertheless the subject of animal traction was neglected in schools and colleges and by agricultural extension workers who regarded it as backward and outdated. This has led to a negative image of working with animals. However it is now recognised that animal traction is an appropriate and affordable option for smallholders which deserves to be promoted as a component of the new government's Restructuring and Development Programme (Krecek, Starkey and Joubert, 1994). Against this background the South African Network for Animal Traction (SANAT) was established in 1993 to improve knowledge and information exchange and to promote research and training concerning the use of draught animals. At around the same time the University of Fort Hare at Alice established an Animal Traction Centre where teams of oxen and Percheron horses are currently being evaluated along with different agricultural implements and tillage practices.

In sub-Saharan Africa oxen are the main source of animal power and they continue to be commonly used in South Africa. Alternative sources of animal power available in South Africa include horses, donkeys and mules. Draught equids have received relatively little attention from researchers and it was therefore decided to carry out an investigation into their use in the Ciskei region. The objectives of this study were:

- To review the use of donkeys, horses and mules in the past in South Africa,
- To carry out a survey to characterise the use of equids in Ciskei in order to identify constraints to their more efficient use.
- To make recommendations for education and extension on the use of equids.

2. BACKGROUND INFORMATION

2.1 The Ciskei Region

The area in which the survey was carried out was the former black homeland of Ciskei which is now part of Eastern Cape Province although the name 'Ciskei' is still commonly used. Figure 1 shows the geographical location of Ciskei within South Africa while Figure 2 is a map of the homeland itself. Ciskei is a heavily populated rural area with approximately 130 people per square kilometre as opposed to 21 people per square kilometre in the non-homeland regions of South Africa (ARDRI, 1990a). During the years of apartheid in South Africa the term 'Bantustan' referred to an area of land reserved for the settlement of native African people. 'Bantustans', also known as 'tribal reserves' or 'black homelands', were generally in the more arid, non-arable and infertile parts of the country, far away from urban areas and separate from the main commercial farming districts. In accordance with the theory of 'separate development' legislation was enforced to divide African people into various groups and to confine each group in its given district which was supposed to be its original homeland. Although supposedly 'self-governing' independent states the Bantustans were effectively controlled by South Africa, serving as a source of cheap black labour for the South African mines and industries while few attempts were made to develop agriculture and marketing. This tendency for people to move away to find work continues so that the youth and able-bodied labour force of the rural areas is drawn away to urban centres leaving mainly pensioners, women and children at home. Agriculture is not looked upon as a career option or income-generating activity with most families depending on pensions and remittances from relatives working elsewhere. In the past missionary education, while not without its benefits, tended to prepare students to work on commercial white farms and businesses rather than enrich their own communities with their newly-acquired knowledge. Agriculture, including the concept of animal traction, came to be looked down upon (Jaiyesimi-Njobe, 1995).

2.2 Agriculture in the Ciskei Region

Socio-economic surveys carried out by the Agricultural and Rural Development Research Institute (ARDRI) based at the University of Fort Hare suggest that as little as 5% of black rural household income is derived from agriculture and only about 20% of rural households are really interested in farming with most employed people being 'commuters'.

Most of the land in Ciskei is owned on a communal basis. Traditionally this means that the land belongs to the tribe but is vested in the chief who administers it and allocates it to the people according to their needs. Residential and arable sites, scattered throughout the area, are allocated by the head-man and communal grazing of livestock is practised. Attempts were made to introduce 'betterment' schemes in some locations whereby entire districts were divided into residential, grazing and arable zones according to what each portion of land was regarded as being most suitable for (Steyn, 1988).

Figure 1: Map of South Africa showing the location of the former Ciskei homeland (hatched area).

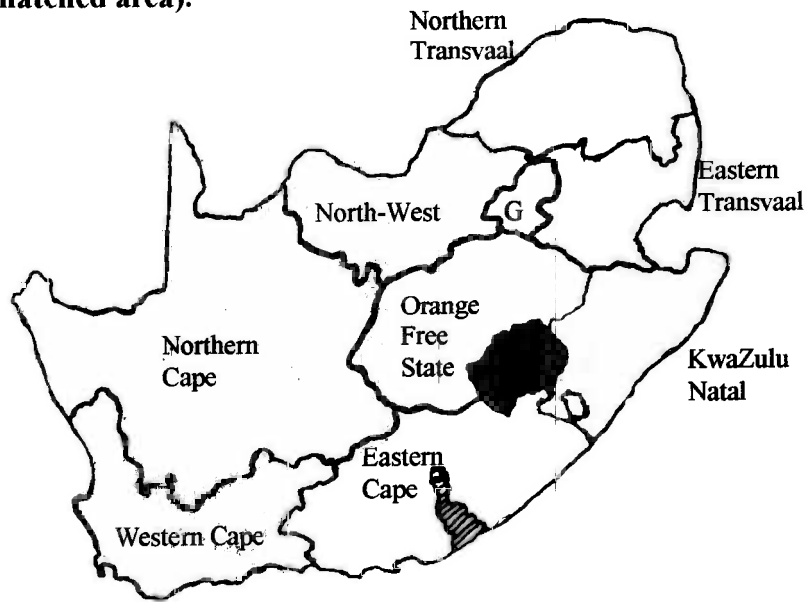


Figure 2: Map of the Ciskei Region.



A system of mixed agriculture is practised involving crop production and animal husbandry. Of these animal husbandry is regarded as being more important (Van Averbek, 1994). Cattle, sheep, goats and pigs are reared. The communal grazing system, whereby all members of the community graze their animals together and there is little or no control of numbers, is quite controversial. Many workers feel that this system of land tenure is one of the main obstacles to agricultural development in rural areas (Steyn, 1988). Although it is difficult to estimate a stocking rate in what is often an ill-defined area, it is suggested that there is a serious over-grazing problem in communal areas which is aggravated by the fact that social prestige is enjoyed by the owners of large numbers of cattle without taking their productivity into account (ARDRI, 1996). The amount of grazing available for draught animals is therefore limited.

Traditional crop production is not market-orientated with most food grown for home consumption which means that people are willing to invest their labour, but not their capital, in tillage. In Ciskei about half the rural households have an arable allocation of approximately 0.5-2.0 hectares, often at a distance from the house. Only about 50% or even less of the arable land is currently used for crops. One of the reasons suggested for this is a lack of draught animal power or tractors. However the quality of the soil, the availability of water and the climate, all of which vary from area to area even within the Ciskei region, are also important factors. For example the Tyume Valley has a sub-humid climate and good crop potential while the Peddie area is dry and semi-arid (ARDRI, 1997). The principal crop grown is maize which is not ideally suited to those regions with shallow soil and marginal rainfall (ARDRI, 1990b). An interesting point to note is that the crop yield from an arable field belongs to an individual grower but the crop residue remaining on the land is regarded as communal property and may be grazed by any animals (Van Averbek, 1994). Share-cropping, whereby one farmer uses another's arable field and in return gives him a portion of the produce, is sometimes practised.

In addition to arable field production many households also have home gardens at their residential sites to produce vegetables such as potatoes, cabbage, beans, melons and pumpkins as well as maize.

A further agricultural system which has been developed in certain areas with varying degrees of success is vegetable plot production under irrigation. This enables two crops per year to be grown. Even with irrigation this agricultural production system only contributes on average about 11% to household income. However the crops produced do make a significant contribution to household food security. It is thought that a minimum plot size of 2 hectares is required for agriculture to become the main source of income for farming households. Unfortunately most irrigation schemes are highly dependent on government subsidies for water and it is anticipated that farmers may soon have to take responsibility for maintaining their own water supplies (ARDRI, 1997). Problems encountered with irrigation schemes include pumps breaking down and delayed availability of tractors resulting in late planting or no planting (Van Averbek, M'Marete, Igodan and Belete, 1998).

Several points relevant to the use of draught animals emerge from this review of agriculture in Ciskei:

- The land tenure system means that opportunities for expansion are limited and there is little incentive to invest in agriculture.
- The arable allocations are very small, so farmers' individual requirements for draught power are not high, and could be met by a pair of small horses.
- There is limited grazing available so, if equids are kept, they should be used efficiently and, if possible, all year round.
- Tractor availability has been a problem with irrigation schemes. Horses and donkeys could be a viable alternative source of power in this situation.
- Crop residues could potentially be harvested for feeding draught animals including equids.

3. HORSES, DONKEYS AND MULES IN SOUTH AFRICA.

3.1 History

The horse is not indigenous to South Africa and was first imported from Java by the Dutch East India Company in the mid-1600s. Within 50 years there were about 2500 horses in the new colony. The horses landed at the Cape were small but strong and hardy and formed the basis of what came to be known as the 'Cape Horse' and of what are now known as the 'Basuto' and the 'Boerperd'. After 1700 more horses were shipped from South America, England and the USA and later from Europe and from the East. During the 19th century heavy draught horses such as the Percheron, Shire and Clydesdale were introduced. Horses were used for riding, transport, agriculture and military purposes but, because of African Horse Sickness, their use was restricted to high altitude areas in the summer with temporary use in the lowlands in the winter. More widespread use became possible with the introduction of Horse Sickness serum in 1909.

Donkeys were first landed at the Cape in 1656 and were used as pack and farm draught animals in the west of the country for about 100 years before spreading to other areas. Mule-breeding became an accepted practice towards the end of the 18th century and these animals were used for transport in agriculture and forestry as well as by the military during the Anglo-Boer War. They were regarded as being hardy and tough and better able to manage on poorer quality food than horses (Joubert, 1995). The widespread use of donkeys and mules by the black communities appears to be relatively recent and may perhaps be linked to the incidence of drought since the late 1950s (Jaiyesimi-Njobe, 1995).

The Anglo-Boer War and the First World War resulted in the loss of thousands of horses and mules in South Africa and the introduction of railways also resulted in less employment of equids. However their use did not die out completely.

The Ciskei region is inhabited predominantly by people of the Xhosa race. During the 19th century some African peoples including the Xhosa and the Basuto began to use horses in high-altitude areas. Horses were originally acquired by the Xhosa as strays and as presents made to chiefs by travellers as well as from raids into Cape Colony (Steyn, 1988). They became more valuable for riding than for working and were an important status-symbol used for personal transport by males. They were used for cultural activities such as weddings where horse-riding drills took place with teams of up to thirty or more brightly-decorated horses representing the bride's family and another team representing the bridegroom's family. Unlike the Xhosa, the Basuto, in addition to riding, also used their horses as pack animals and slaughtered them for meat (Jaiyesimi-Njobe, 1995).

3.2 Current Use of Equids for Work

Today about 180,000 horses and ponies are found in the former 'Bantustan' areas of South Africa. They are generally of a light build and range in height from about 13.2

hh (138 cm) to 15.2 hh (158 cm). Their use is quite localised but they are notably prevalent in the Eastern Cape Province, particularly in Transkei. About 150,000 donkeys are currently employed in the whole country (Starkey, Jaiyesimi-Njobe and Hanekom, 1995). A census conducted in 1992 indicated that there were 2800 horses, donkeys and mules in the Ciskei.

SANAT commissioned a nationwide rapid rural appraisal survey in 1994 which assessed the draught power situation throughout the entire country including Ciskei and the Eastern Cape. In Ciskei little use of animal traction was reported in the flat arable areas near the coast where there are a number of large irrigation schemes. Moving further inland draught animal power became more important with cattle being the main animals employed for ploughing, planting and weeding. Oxen also pulled sledges and carts. It was found to be more unusual for horses to work, while some donkeys were used as pack animals and to drag wood (Starkey, Hanekom, Lake, Meikle and Jaiyesimi-Njobe, 1995).

Another recent survey in the former Transkei and Ciskei regions suggested that 67% of farmers used cattle for draught while only 11% used horses for work despite the fact that 36% kept horses. A total of 94 farmers were interviewed who between them owned 96 horses. Four farmers worked with donkeys and two used mules (O'Neill, Sneyd, Mzileni, Mapeyi, Njekya and Israel, 1998). It is unusual for relatively poor communities to keep so many horses which are not used for working.

Another interesting point to note is that an Eastern Cape farmers' delegation to a SANAT workshop in March 1996 identified a lack of suitable horses and mules for traction purposes as one of the major constraints to the adoption of draught animal power (Simalenga and Joubert, 1997). This would appear to suggest that more people would like to use equine draught animals but do not consider those already available to them to be particularly suitable.

From this review it can be concluded that:

- Horses, donkeys and mules have all been employed in South Africa in the past and significant numbers continue to be found in the former homelands of the Eastern Cape Province;
- The horse has traditionally enjoyed high status in Xhosa culture;
- There may be a perception that 'better' equids are needed for draught purposes.

4. SURVEY OF EQUINE USERS

A survey of horse, donkey and mule owners was carried out in the former Ciskei region of Eastern Cape Province with the objective of characterising the use of equids in the area in order to identify constraints to their more efficient use.

4.1 Materials and Methods

The survey was conducted over a six week period from July 2nd to August 12th. The research team, consisting of the author and two interpreters one of whom was a local extension officer, was based at the University of Fort Hare Animal Traction Centre in Alice which was reasonably central for daily travelling to selected interview locations. A vehicle was made available by the Animal Traction Centre.

It was decided to avoid a rigidly-structured questionnaire format which, in addition to being laborious for both interviewer and respondent, can produce invalid information (ARDRI, 1994). Instead it was intended to conduct a semi-structured interview and to involve the interviewees in informal and relaxed discussions about the husbandry and use of equids in their localities. A check-list of questions and topics of interest was prepared and this was used to guide the interviews in a certain direction while allowing the flexibility for participants to talk about aspects of horse, mule and donkey care which seemed particularly significant to them. The check-list is attached at the end of this report (Appendix 1) and covered such topics as, the reasons for using equids, the roles performed, economic factors, husbandry and health.

Two of the team members were fluent speakers of the Xhosa language which is spoken in the Ciskei region so interviews were conducted in Xhosa by one team member while another acted as translator and recorded the main findings. Prior to starting the purpose and aims of the Animal Traction Centre were explained so that the participants understood that, while this particular exercise was purely for research and had no direct benefits for them, the Animal Traction Centre existed to help smaller farmers. Interviews were arranged by the extension officer through his contacts in the agricultural extension services. Each region of the former Ciskei homeland was visited in turn. The locations visited were Victoria East, Keiskammahoek, Peddie, Middledrift, Whittlesea, (Hewu), Seymour, Mdantsane and Zwelitsha. On entering a new area the team visited the local agricultural office to briefly explain their business and request help in locating local people who could assist the research project. In many cases a member of staff from the office was made available as a guide for the day. A visit was also made to each village chairman to ask for co-operation and to explain the objectives of the survey. Some interviews were conducted with individual horse and donkey owners while others involved the participation of a large number of people (up to 28). Initially it was felt that it was more courteous, where possible, to arrange meetings to which anyone in the locality who used or kept equids was invited. This was because people might feel that they were being overlooked if they heard that the research team had been in the area without them being informed. However some larger meetings attracted many people who were not equine-users and wanted to raise other community issues which they considered to be more relevant. It was generally found that one or two enthusiastic

individuals could provide more information than a generally disinterested group so as the survey progressed the tendency was to speak to more individual owners. Visits were also made to two local white farmers who use equids for work and to two commercial premises where agricultural equipment was on sale.

Most horses and donkeys graze extensively on communal lands so people were not asked to go to the trouble of bringing their animals in specially. If animals were present an opportunity was taken to examine them briefly. Similarly harnesses, carts and other equipment were looked at when possible. It was also possible to look at animals who were actually working when the survey team was passing by, which gave a valuable insight into how they were handled and how efficiently their harness and implements worked. Photographs were taken to illustrate the types of animals, carts and equipment seen and to highlight some of their good and bad points.

Faecal samples were taken from four horses and four donkeys for worm egg and larval counts. This was intended to give a rough indication as to whether or not internal parasite burdens were high, and whether anthelmintic treatment or any other control measures were required.

4.2 Results

Among the black and coloured communities a total of 10 group meetings were held while 36 individual owners were interviewed. Of the latter 20 owned donkeys, 12 owned horses, 3 used both horses and donkeys and 1 owned a mule. Out of the 20 donkey owners, 3 were female, while no women who owned horses or mules were interviewed. This is probably a reflection of the fact that horses are normally associated with men in Xhosa culture.

The way in which the survey was carried out meant that very little quantitative data was obtained but wherever possible the frequency with which various points were raised is displayed in a tabular form.

Equids, particularly donkeys, were considered to be easy to care for and donkeys were also said to be very docile. An advantage of using horses or donkeys was that they stay nearer the villages than cattle so that there is little time wasted rounding them up before work. One of the most common reasons for their use was that they needed less labour to work with than cattle. It was thought that a pair of horses could easily be managed by one man while a team of oxen required much more additional help. This was seen as being particularly important if the younger men of the area were away working in the cities. It was also felt that donkeys and horses could be hired to others more easily than oxen. It was considered that equids were suitable for women to use, although only a very small minority of the people interviewed (all donkey users) were female. Equids were also considered to be suitable for children to help with but many people stressed that, especially in the case of donkeys, this should be strictly supervised as children had a tendency to be cruel and abusive.

Table 1: Reasons for choosing equine draught animals

Reasons	Number of times mentioned	
	Horses	Donkeys
Less labour required than cattle	7	4
Poverty, unemployment or disability	1	12
Economically viable or cheaper than cattle	4	3
Tradition or followed someone else's example	2	3
Resistant to drought	3	1
Easy to look after	2	1
Docile or suitable for women and children to use	1	
Faster than cattle	1	
Easy to hire	1	
Suitable for small areas	1	

The use of working equids was economically viable. The cost of tractors, diesel, spare parts and tyres meant that tractor ownership and, more significantly, maintenance was out of reach for most people. Many donkey owners cited poverty, lack of money, unemployment or physical handicap as their reason for starting to use donkeys to cart water and wood for other members of the community. Donkeys are a lot cheaper than horses which in turn are cheaper than cattle. Donkeys and horses were considered to be more suitable than oxen or tractors for ploughing small garden plots or hilly fields. Many donkey users ploughed gardens on a commercial basis for their neighbours.

Drought often had an influence on the decision to use equids. Many potential working cattle died during periods of drought causing farmers to turn to horses and donkeys as a means of draught power. Horses, and particularly donkeys, were regarded as being able to cope better with prolonged dry conditions. An unexpected point made by one group of farmers was that horses regained condition more quickly after the dry season than cattle and thus were able to start land preparation more promptly in September and October.

For some people the use of donkeys and horses was a tradition inherited from their fathers or a skill learned while working on a commercial farm during their youth

Interest in Mules and Heavy Horses

Working with horses and mules was thought to be faster than with donkeys. Opinion was fairly equally divided as to whether or not mules would be an improvement on the donkeys and horses currently used. Only one farmer interviewed actually used mules. Several said that they would like mules but that they were hard to get.

Breeding mules using local pony mares had not been considered by those who wanted them. Others did not want mules on the basis that they were either 'rough', 'cruel', 'moody', 'too strong', 'unreliable', 'time conscious' or that they must be worked every day. One man said that he would like a mule but that his family would be frightened of it.

One or two farmers expressed an interest in getting heavy horses while others felt that their grazing would not support them. This feeling was supported by one man who bought two Percherons but found that they both died within a short time. Another suggestion was that a group of farmers could buy a heavy stallion to mate with their smaller mares thus increasing the size and potential for growth of the foals born. Some donkey owners would like horses but realised that they could not afford them, while several would prefer to increase the number of donkeys they already have.

Roles Performed by Equids

Some people kept horses and donkeys primarily for their own use while others acquired them specifically to generate income by working for other members of the community.

Table 2: Roles performed by horses and donkeys

Roles performed	Number of times mentioned	
	Horses	Donkeys
Ploughing	10	21
Planting	8	3
Weeding	7	5
Harrowing	4	5
Personal transport	5	3
Transport of water	6	13
Transport of wood	5	24
Transport of harvest or vegetables	2	4
Transport of manure	1	2
Transport of building materials	2	6
Transport of sand	1	6
Herding cattle	8	
Payment of "Lobola"	3	
Racing	1	
Use at weddings or cultural events	2	

Agricultural roles included ploughing which involved spanning 4-6 donkeys (Figure 3) or 2-3 horses. Planting, cultivating, harrowing and transport of harvest and manure were other farming tasks. Horses had an additional role in that they could be used to herd cattle or check stock which might be grazing at a considerable distance from the village.

Other roles included personal transport, either by donkey cart or on horseback, as well as transport of water, fire-wood, kraal bushes, sand and building materials. However, because all the villages can be reached by road, the main means of transport over longer distances is the motor-car or taxi.

In some communities horses, fully-equipped with saddles and bridles, could be used for 'lobola' (or given by a man to his future wife's family) while in others this was not the case. Donkeys were never used for lobola, presumably because of their low status. Other non-working activities included horse-racing, which a small minority of owners took part in, and performing drills at weddings, a tradition which is maintained by a few people. No use was made of horse or donkey meat or hides. After death they were either eaten by dogs or buried.

Economic Aspects

The median number of donkeys owned by the 20 individual owners interviewed was 6 (range 2-12) while the median number of horses owned by 12 individuals was 1 (range 1-10). Prices quoted for horses ranged from R500-R1050 while donkey prices ranged from R50-R200. The current exchange rate is approximately R10 = £1 Sterling. Prices quoted for donkeys tended to be higher in the Zwelitsha and Mdantsane areas and the highest horse price was also quoted in Zwelitsha. One or two farmers suggested that a horse could be swapped or bartered for an ox or a heifer although cattle were generally felt to be more valuable. One person said that he exchanged one goat for a donkey.

Some earnings were quoted for various tasks. To plough 0.5 hectares, which a team of donkeys could do in a day, would earn approximately R80. The current rate for tractor ploughing is R270 per hectare. The charge for delivering 200 litres of water varied from R8-R40. The estimated daily income from working donkeys varied from R20-R150. It is difficult to compare income generated on a daily basis with that from regular full-time employment but, to give some idea of other wages, a farm labourer earns approximately R1000 per month while a pension or welfare grant might amount to about R400 per month. The potential return from a modest investment in donkeys can be considerable by comparison with other enterprises. For example, an analysis of small-scale broiler production in Ciskei showed that an initial investment of about R800 in young birds, feed and medicines was required to make a profit of R250 when the broilers were finally sold and paid for three months later (ARDRI, 1997). A similar sum could buy a new plough and a team of four donkeys which could generate income immediately and could continue to do so with a minimum of further investment.

Equipment

Tillage Generally speaking farmers did not complain about the availability of draught animal implements although one farmers' group suggested that scarcity of equipment was a problem. Most farmers had an adequate supply of implements such as mould-board ploughs (most commonly the VS 8"), planters, harrows and cultivators. These tended to be quite old and to have been designed with oxen rather than small horses and donkeys in mind. New implements can be purchased in larger urban centres such as Queenstown and East London. Some prices of tillage implements are shown below.

Table 3: Price of implements in the Ciskei area in 1998

Implement	Price (Rand)
8" plough	R649
12" plough	R799
Cultivator	R995
Planter	R1799
Ridger	R795
Donkey plough	R440
Donkey cultivator	R455

Transport The most common means of transport was the two-wheeled cart with a single shaft (Figure 4). Carts tended to be home-made and heavy, being based mainly on old car axles. Several larger four-wheeled wagons were observed (Figure 5) and sledges were also seen. An interesting innovation, seen on quite a few occasions, was the use of rubber 'brake-pads' made from old tyres. These could be pulled tightly against the wheels to act as brakes (Figure 6). Only one person interviewed used her donkeys as pack animals for carrying water rather than carting. This was done by using two 20 litre drums tied together in a manner which protected the donkey's spine from any pressure.

Harnessing All the donkey harnesses and almost all the horse harnesses were home-made and all were of the breast-band type. The quality of harness varied from very good (Figures 7 and 8) to very poor (Figures 9 and 10), but in general an effort was made to ensure that the animal's skin was protected from sharp edges, metal staples and wire. Materials used included pulley belts, seat belts, rubber tubing and old tyres. Foam rubber and sheep-skin padding was occasionally seen. Some cases of bad harnessing practices were seen. For example breeching straps were often absent. The weight of the cart was transferred to the animals by a thin rope in some cases and sometimes the animals were tied together in such a way that they could not work

Figure 3. Team of donkeys ploughing, Seymour district.



Figure 4. Typical two-wheeled cart, Keiskammahoek District.



efficiently. Bridles also tended to be home-made using various straps, rope and wire. Most bits were old with some improvised wire designs also seen.

Training and Working Life Expectancy

The importance of handling young animals gently from an early age was stressed by some participants. The ages at which horses and donkeys were broken-in or trained to work varied considerably, 1.5 years being the youngest reported and 5 years the oldest. The most commonly reported age was 3 years. Some people went more by the weight and appearance of the animals and whether or not they urgently needed to use them. The length of time taken to train a young animal varied from 2-3 days to 1.5 weeks. Inexperienced animals were generally introduced to draught work by pulling a light load such as a tyre or branches along the ground or simply by spanning them alongside or behind experienced workers. Most people expected a horse to work for anything from 7-15 years while donkeys were expected to remain useful for 15-30 years. Apart from the very young animals, people tended to be vague about the ages of their horses and donkeys. In some cases a very quick examination of the animals' teeth suggested that they were considerably older than their owners thought.

Feeding

The main source of nutrition for both horses and donkeys was communal grazing. This means that if the dry season (winter) is prolonged, food shortages can occur and horses tend to lose condition. Most farmers (11 out of 12 who discussed this topic) indicated that they supplemented their horses' diets before and during the ploughing season. Supplements mentioned included maize and lucerne and, less commonly, maize stover, vegetable leaves, oats, barley and sorghum malt. Feeding was also practised to ensure that horses remained tame and easy to catch and handle. The majority of donkey owners (12 out of 17) said that they did not give any supplementary feeding.

Security

While theft was said to be rare in the Victoria East District, it was said to be common in Keiskammahoek, Peddie, Hewu, Seymour, Zwelitsha and Mdantsane. The reaction of the police was said to be inadequate. Where stock-theft was a problem animals tended to be kept in enclosures or kraals. Another reason for keeping donkeys in kraals was that there was a danger of them being teased by children or maliciously wounded if left out in communal areas. This problem was reported once in Keiskammahoek while in Mdantsane one man had lost 2 donkeys and in Zwelitsha another had lost 10 as a result of ill-treatment by other people.

Figure 5. Four-wheeled wagon, Whittlesea District.



Figure 6. Home-made braking system, Keiskammahoek. District

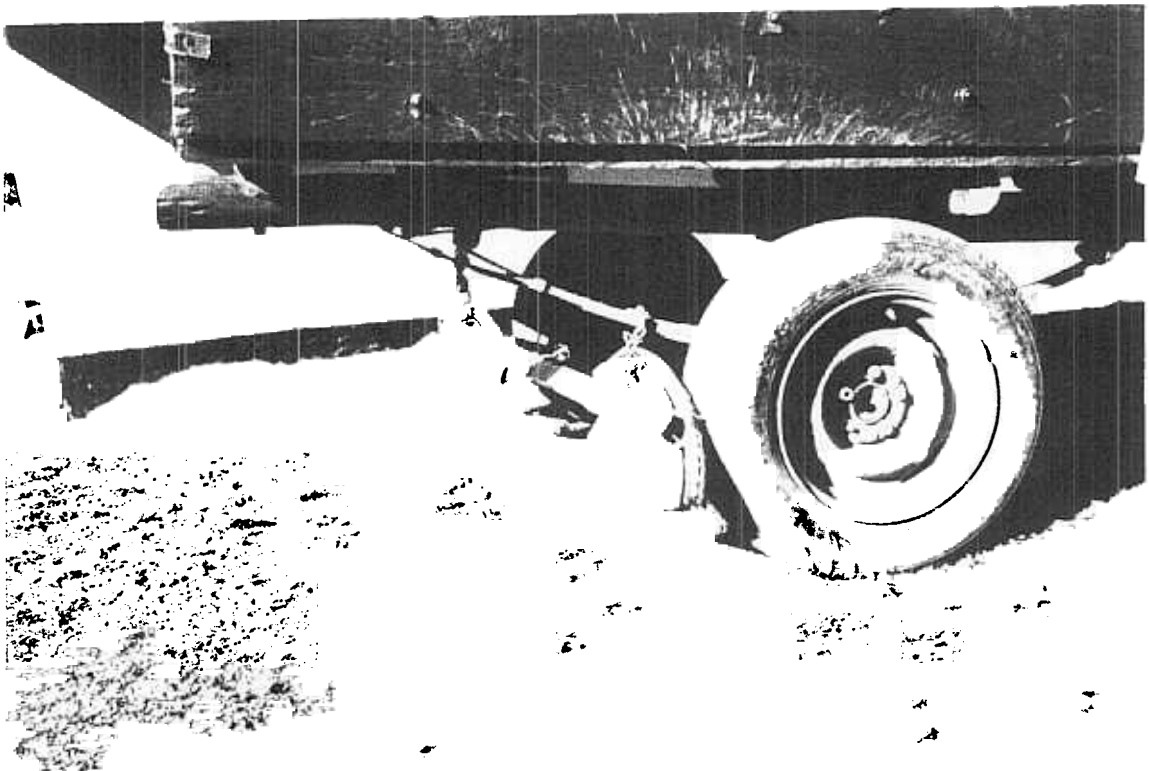


Figure An mple of good nme-ma Seymour District.



Figure Good quality leather harness, Keiskammahoek District.

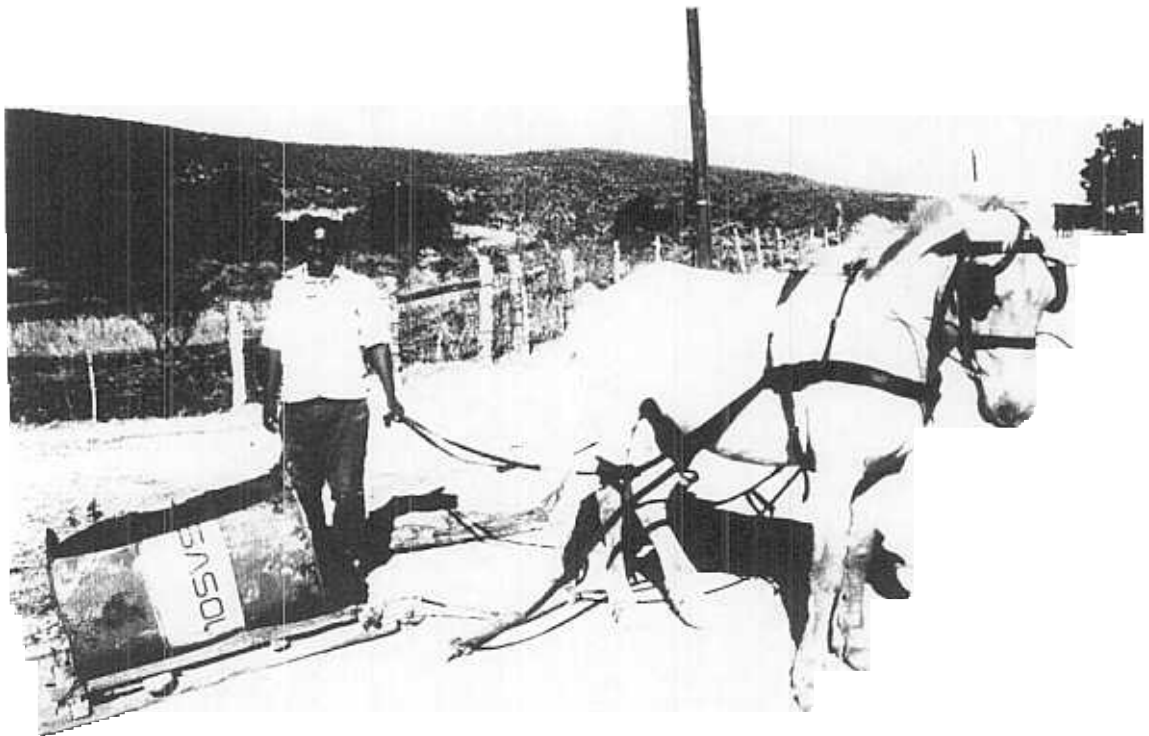


Figure 9. An example of poor harnessing.

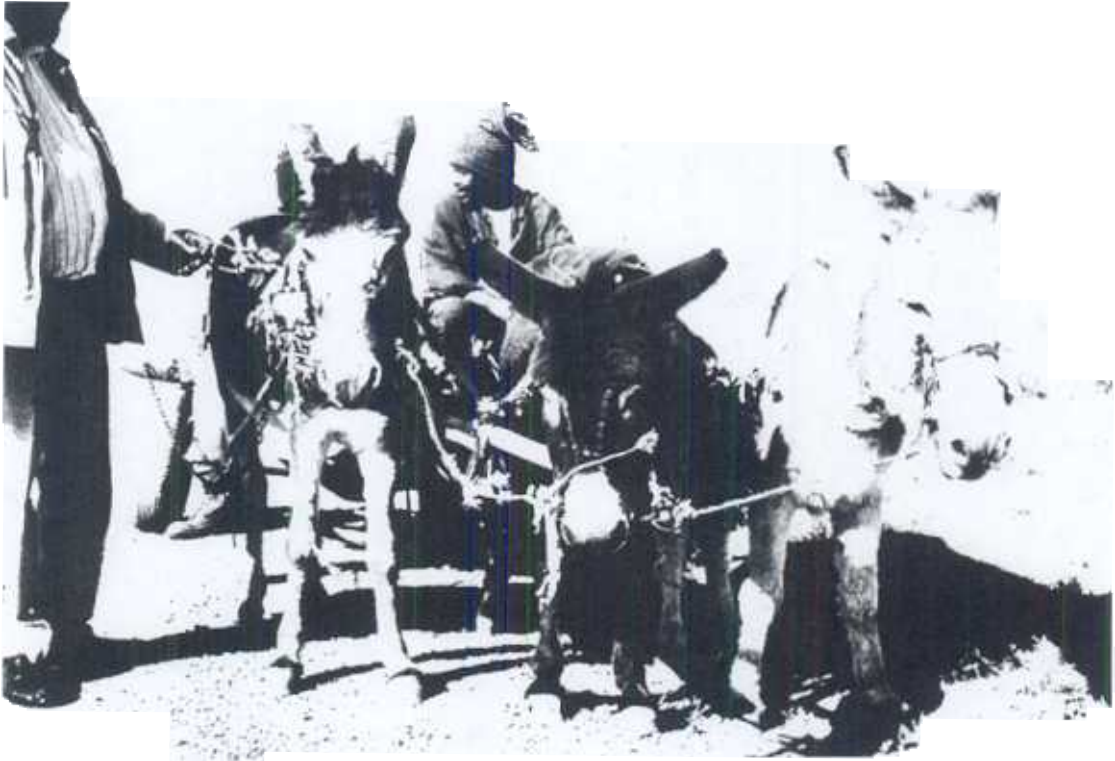
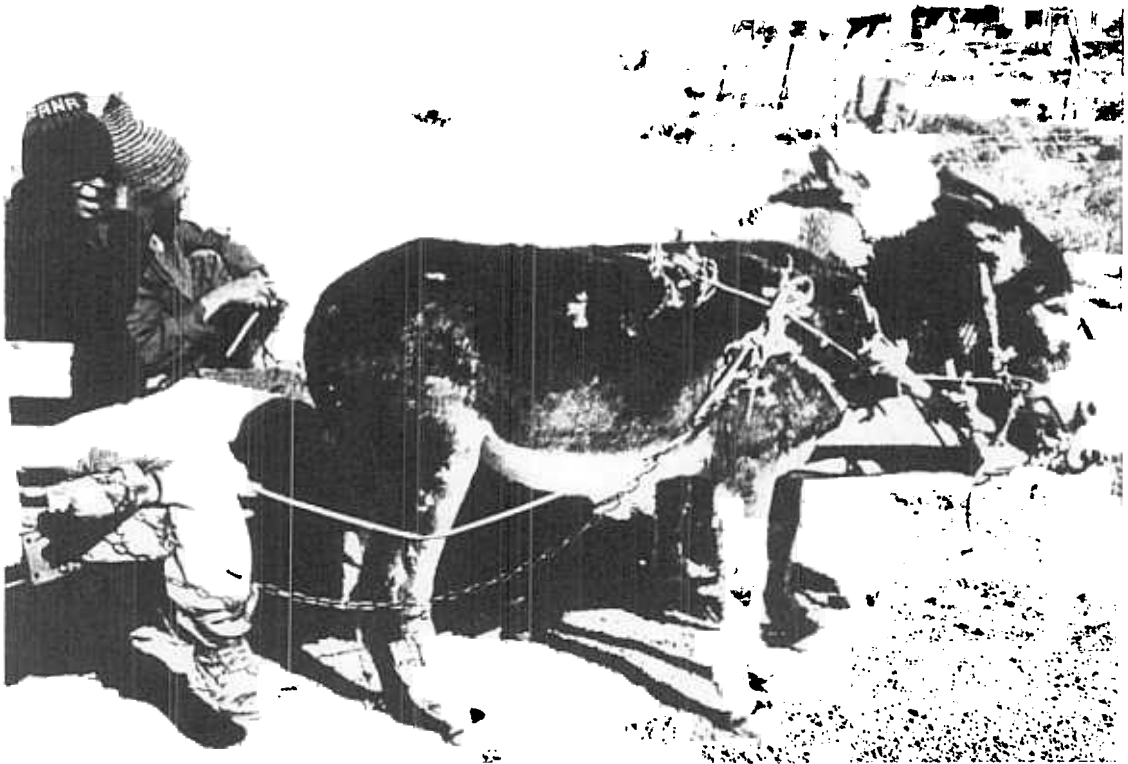


Figure 10. Side view of the harness shown in Figure 9.



Lameness and Shoeing

Lameness, while reported by one horse owner and three donkey owners was seldom a significant problem. No donkeys were shod. Virtually no working horses were shod. One owner had horse shoes but no one in his area had the necessary skills to put them on. Others occasionally bought shoes and shod their own horses but this was rarely considered necessary. It was suggested that once you started using shoes with a horse you would have to continue doing so and it was better not to start. The only animals actually seen wearing shoes were riding horses at Kamastone village in the Hewu district. Only one farmer reported a problem with his horse's hooves which he said were very flat so that the horse was walking on his heels. Lack of shoes and of local blacksmiths were not seen as important constraints to the use of equids as draught animals.

Breeding

For the vast majority of donkeys and horses in the communal areas breeding takes place completely at random. Breeding was unplanned with 9 out of 13 horse owners who discussed this topic while 19 out of 20 donkey owners did not control their animals' breeding in any way. Occasional owners selected stallions to mate with their mares. The expected lifetime production of foals for a mare would be about 6 to 12 foals. Donkey owners in particular reported foaling at regular yearly intervals with mating taking place soon after parturition. Most foalings occur in spring and summer (September onwards) and are unobserved by people with only one man saying that he knew how to assist if necessary. In-foal mares were generally worked but care was taken in the later stages of pregnancy. Very occasional abortions were reported. One owner felt that one of his donkey mares had aborted as a result of ill-treatment by children. Another reported deaths in young foals for which he felt snakes could be responsible. A commonly-mentioned problem was that of donkey jacks attacking and even killing young foals at the time of post-parturient mating.

Castration

Some donkey and horse owners expressed a preference for using entire stallions for working because they are considered to be stronger than mares or geldings. Castration is often not performed unless behavioural problems arise. The most common age for castration was 5-7 years. Reasons given were to facilitate handling male horses and to prevent donkeys from roaming and fighting. Veterinary assistance for castration was rare with most operations being carried out either by the owner or by another local person using a knife. One horse owner used a burdizzo while this method was also favoured by two or three donkey owners. One death following a donkey castration was reported. The lack of people who could castrate properly and the absence of training in this area were frequently mentioned as problems, particularly by donkey users.

Health

Most owners reported that they experienced no sickness with donkeys although several carried out some form of tick control by direct application of used engine oil or by using 'Deadline' pour-on (Flumethrin) or cattle-dip. One owner reported mange which she treated with cattle-dip while another treated warts with 'Kerol' (carbolic acid). No worm treatments were given. Bites as a result of males fighting were mentioned. Skin wounds, possibly resulting from ill-fitting harness, were observed, as was one case of cut knees resulting from falling on the road (Figure 11).

Various problems were reported with horses including ticks and, much less frequently, warts and mange. These were treated in a similar fashion to the same conditions in donkeys. Babesiosis was frequently mentioned. Other conditions included mild coughing, worms, coughing associated with worms, swollen penises (possibly due to local tick irritation), 'papias'(bots), nodular skin eruptions (possibly epizootic lymphangitis), 'grundling' and coughing leading to sudden death (possibly African Horse Sickness).

Table 4: Health problems reported

Health Problems	Number of times mentioned	
	Horses	Donkeys
No sickness experienced	2	14
Ticks	11	13
Mange	1	1
Warts	3	1
Worms	4	1
Wounds	2	2
Babesiosis	7	
'Grundling'	3	
'Papias' (Bots)	1	
Ulcerating skin nodules	1	
Coughing	5	1
Sudden death	2	
Swollen penises	1	

Some owners got medicines from co-ops and agricultural officers for conditions such as babesiosis. Several mentioned using herbs but rarely specified which ones. No vaccinations were carried out. A veterinary service was seldom available locally. Agricultural officers who had formerly given advice no longer did so.

The only wormer mentioned was 'Equiguard' but generally no worm treatments were given. While meaningful interpretation of round-worm egg counts is difficult, the worm egg and larval counts obtained from four randomly-selected donkeys and four randomly-selected horses are shown below. As a rough guide, counts in excess of 1000 eggs per gram may be regarded as high, and counts in excess of 2500 eggs per gram very high, according to Feseha, Mohammed and Yilma, (1991). Soulsby (1982) suggests that, in equine faeces, up to 500 eggs per gram indicates mild infection, 800-1000 eggs per gram indicates moderate infection, while 1500-2000 eggs per gram indicates severe infection. This would suggest that at least some equids in the Ciskei area have high internal parasite burdens.

Table 5: Worm egg counts from the equids that were sampled

Animal	Round-worm eggs (per gm faeces)	Lung-worm larvae (+ or -)
Donkey		
A	700	+
B	3600	+
C	2850	+
D	2450	+
Horse		
A	1750	-
B	700	-
C	650	-
D	2200	-

Donkeys are well known to be lung-worm carriers so it is not surprising to see that all four were positive for lung-worm larvae while the horses were not. The lung-worms are unlikely to cause the donkeys any ill effects, but they could infect horses kept in close proximity with more serious results.

4.3. Limitations of the Survey

There were several factors which limited the amount of information which this survey could find out.

- The author did not speak Xhosa. No matter how good interpreters are it is very difficult to carry out anything other than a very superficial conversation with people whose language one does not understand. It is inevitable that certain points

are lost in translation. The disadvantage of not knowing the local language was also noted by Kneale (1996).

- The time available for conducting the survey was limited so only a relatively small number of interviews could be carried out in a restricted geographical area.
- There was insufficient time to have a trial run to test and evaluate the interview check-list before starting the survey.
- There may have been a bias towards speaking to men because the survey arrangements were made by men and the interviews were conducted entirely by men. However the high number of men spoken to probably reflects the fact that horses are predominantly associated with men in Xhosa culture.
- Because the interviews were arranged through the agricultural extension services with known equine users, the interviewees could not strictly be said to have been selected at random.
- A disadvantage of carrying out a semi-structured interview is that, while interesting information is gathered, it is often very difficult to quantify or analyse statistically.
- To make a meaningful assessment of veterinary problems would require working in the area over a much longer period. Similarly the information obtained on feeding was very superficial and more detail would be required regarding the exact quantities fed and the seasonal availability and quality of foodstuffs.

Figure 11. Donkey with cut knees



Figure 12. Contestants at Middledrift show



5. DISCUSSION

This section examines issues arising from the survey and review which are relevant to extension workers and researchers in draught animal use in Eastern Cape Province.

5.1 Choice of Draught Animal

The use of draught animals cannot be promoted in isolation from other aspects of agriculture in Ciskei. Advice also needs to be given about tillage methods and the most appropriate crops to grow taking local soil types and rainfall into consideration. As the arable land available to most small-holders is only about two hectares they don't need large numbers of draught animals unless they plan to work for other people. A pair of small horses is often quite adequate to meet their requirements.

Donkeys As is the case in many parts of the world donkeys, costing as little as R 50 each, are the first affordable option for the person with limited capital (Pearson and Smith, 1994). Donkeys can make an enormous contribution to the economic well-being of their owners. Some owners said that they had made enough money through their donkey business activities to pay for their children's' school fees, to buy second-hand cars or even to build houses. Many of the donkey's good points which emerged from this survey, such as drought resistance and ease of management, have been commented on by other writers (Jones, 1997). The status of the donkey is still very low and it can be ridiculed and subjected to senseless abuse to the extent that many people are forced to keep their animals in an enclosure or kraal at night for security reasons. The problem of abuse was also reported by other workers (Kneale, 1996). One of the challenges facing SANAT is to overcome such prejudice. This might start at the class-room level where the role of the donkey in biblical stories could be stressed because the majority of people in the Ciskei area are Christians. Promotion of donkey classes at agricultural shows where other animals are enthusiastically exhibited might be a good step forward. The recent development of lightweight donkey implements means that fewer animals should be needed to perform agricultural tasks thereby reducing the pressure on limited communal grazing. In practice it is more likely that the use of larger teams and older, heavier equipment will continue in the short term at least.

Horses The small horse is a considerable step up from the donkey and can be multipurpose, being a relatively fast means of transport as well as being used for work. Traditionally the horse enjoys comparatively high status although this may have declined due to the advent of the motor-car (Steyn, 1988). Most horse owners interviewed used their horses for work but they probably could be used for a wider variety of tasks. For example, in Kamastone, there are an estimated 90-100 riding horses in the village but their contribution to agriculture is less than it might be due to a lack of harness. Similarly there is considerable interest in horse-racing in the Ciskei area and there is no reason why horses kept primarily for racing should not also be used for animal traction. Promoting this idea might be a way of getting young people, who already take pride in their horses, interested in animal traction because the riders at races and shows are usually young boys (Figure 12).

Heavy Horses No farmers interviewed currently used heavy working horses. The one farmer who did use Percherons found that they died shortly after he got them. Several heavy horses have been sold into the former Bantustans by commercial farmers who use them on their own farms but many of these ventures have reportedly not been successful. It is suggested that communal grazing is not adequate to support heavy horses and their use in Ciskei should not be encouraged at this stage. Further investigation of this problem might be helpful. Quite apart from the welfare aspect the loss of a Percheron represents a financial loss of about R5000 which would be a major blow to a poor family.

Mules Much has been said about the exceptional ability of the mule to work hard in an unfavourable environment (Fielding and Krause, 1998). However this survey found only one farmer using a mule. As no one in the area is breeding mules they must be purchased elsewhere and are quite expensive. A weaned foal, which will not be ready to work for almost three years, costs from R1000 upwards, while a trained mule would cost around R2500. To justify buying a mule at these prices a farmer would need to be sure that his animal was worth three times as much as a local horse or 10-20 times as much as a donkey in terms of how much work he could expect from it. A further disadvantage of the mule is that it cannot reproduce. Also it may be less risky to buy two or three cheaper animals than to invest a large sum in one animal however good that individual may be. The other side of this argument is that it costs less to feed one good animal than several bad ones but, with communal grazing, farmers are less likely to consider this. However, anyone who made the effort to breed mules locally would be likely to have plenty of customers for his young stock.

Oxen Oxen have certain important advantages over equids. Yokes suitable for oxen are relatively simple to make and cattle can also, if necessary, be slaughtered for meat. Oxen can actually increase in value during the years spent working (Dankwerts, 1994). The big disadvantages of using horses and donkeys as opposed to oxen are that equine harnessing is more complicated and there is no meat or skin value if for some reason the animals can no longer work.. If farmers in Ciskei are already using oxen there is no reason why they should change to equids unless they require animals for transport. Oxen are generally regarded as being suitable for heavy work such as ploughing but are slower than equids which is a disadvantage if they are needed for haulage. However in Ciskei most haulage over long distances is done by motor transport. Draught animals still have a role in carrying goods over shorter distances and to and from more inaccessible areas where speed is not so important and ox carts might be quite adequate.

Gender Issues Horses, donkeys and mules were said to require less labour than cattle and it was generally acceptable for women to use them. The reasons preventing women from using oxen are probably based more on culture and tradition than on practical considerations (Sylwander, 1994). This tradition is now being challenged in other countries (Marshall and Sizwa, 1994). The ease with which an individual of any species of draught animal can be handled depends on its temperament and training. Experience with oxen at the University of Fort Hare's Animal Traction Centre would suggest that if well handled from an early age they should not be more difficult to manage than horses or donkeys.

5.2 Working Practices and Equipment

Tillage The promotion of lightweight implements suitable for small horses and donkeys should be encouraged. Ploughs which can be pulled by a single donkey have been developed and evaluated in other countries (Inns, Shetto and Mkomwa, 1995). Single donkey ploughs are unlikely to be suitable for the heavier South African soils but small ploughs requiring about 700N draught force under South African type conditions have been developed (Starkey, 1998). A donkey can generate a draught force of around 240-280 N so two donkeys would be insufficient to pull this type of plough but two ponies could easily manage it. There has recently been much interest in developing conservation tillage methods, many of which require less draught power than traditional techniques, and can be used in conjunction with draught animals. Rippers which are suitable for donkeys and horses require much less draught force than the conventional mould-board plough. A ripper attachment costing about R150 can be attached to a mould-board frame to make an implement suitable for use with two donkeys.

Harnesses Harnessing was seen to be a problem. While some horses had professionally-made leather harnesses, these were in the minority. Leather is expensive and requires regular maintenance. Leather harnesses for a pair of donkeys would cost around R2000 or about ten times as much as the donkeys themselves. Consequently cheaper materials such as old seat-belts are commonly used to make perfectly adequate harnesses. Ideally a harness should be strong but light because extra weight gives the animals extra work. The straps should be broad especially where maximum pressure is exerted and padding may also help to prevent skin injuries. Some people use machine belting which may be too rigid and cause sores (Wells, Krecek and Kneale, 1997). The provision of breeching straps is often neglected. This is very important to prevent carts from running forwards when going downhill and possibly injuring the animals' hind legs. Breeching is not necessary if tillage tasks like ploughing are being carried out. The breast-band harness is probably the best to promote. Professionally-made collar harnesses, while said to be more efficient (Krause, 1994), need to be individually fitted and are generally not available in South Africa. A simplified three-pad collar has been designed (Dibbits, 1991) which would be worth further evaluation.

The use of snaffle bits is to be recommended. Although it is suggested that home-made bits can be satisfactory (Jones, 1997), care must be taken to avoid using thin wire or metal with sharp edges. It is possible to train donkeys for work without using bits (Jones, 1997). This would reduce the expense involved as a new bit costs around R72 and would also have welfare benefits. Observations made during the time spent on the survey would suggest that rough handling of donkeys' mouths by hauling on their bits is a common problem. Similarly a further saving of material can be made by not using blinkers. Blinkers restrict the animal's vision to what is directly in front of it, the theory being that this stops it from being distracted or frightened by seeing the load it is pulling. It could be argued that a horse or donkey is more likely to be frightened by a rattling cart which it cannot see. Lop-sided or half-functional improvised blinkers can often be a hindrance (Rendle, 1997). Nose-bands and throat-straps can also unnecessary.

Carts and Wagons One frequently observed problem with the use of equids for haulage was the heavyweight carts or wagons used which require considerable energy to pull even when empty. When building carts the importance of using strong but light materials should be stressed. Most of the vehicles currently in use are based on old car axles which are heavy but will probably continue to be used for economic reasons. Lighter axles which would be suitable for animal-drawn vehicles are available but cost about R1200. The popularity of small motor-drawn luggage trailers on the roads would suggest that lighter, second-hand axles may become available in the future.

The harnessing system whereby the animal and its load are linked deserves attention especially when two-wheeled carts are used. A four-wheeled wagon can stand alone whereas a two-wheeled cart uses the draught animals as its third support. This means that, in addition to the horizontal forces of pulling and braking, the animals also have to support some of the vertical load. This component is affected by the weight of the cart, the weight of the load carried and its distribution in the cart. The centre of gravity for the load should ideally be just in front of the axle. All the carts seen had a single central shaft or disselboom. With this system the weight of the cart is transferred to the horses and donkeys by a breast-yoke (or klein disselboom) suspended from the animals' necks by straps (Figure 13). Ideally the breast-yoke should be a light bar suspended by a wide strap but in practice this is often not the case and thin rope is often used. If there is no braking system or breeching the neck also acts as a partial brake. It is generally regarded as preferable if the weight can be taken on the animals' backs. An alternative system is the dorsal-yoke (Figure 14) which is secured to saddles on the animals' backs and from which the central shaft is suspended (Krause, 1994). This would be worth evaluating in Ciskei. Another system involves using swingles and eveners in front of, as well as behind, the animals (Jones, 1997) but this appears rather complicated for widespread adoption. A double-shafted cart can be used with one horse or donkey provided the cart and the load are a suitable weight. If extra weight is carried an extra animal can be hitched in tandem (Figure 15). A further suggestion which has been successfully adopted on commercial farms is the use of a hitch-cart, or small cart just big enough for a driver to sit on, to which the main cart is attached so that the weight distribution is similar to that of a four-wheeled wagon (Figure 16). The hitch-cart can also be used for pulling tillage implements.

Several light-weight carts have been designed, some of which are suitable for single donkeys (Anderson and Dennis, 1994a), but none of these were seen in Ciskei. The locally-built, 'V' shaped, Golovan cart is designed to ensure that the weight of the load is always directly above the axle. Figure 17 shows the ox-drawn version of this cart. A similar vehicle suitable for pulling with two donkeys is available. It costs R2400 with pneumatic wheels or R1900 with steel wheels. This is unlikely to be attractive to a potential buyer from a communal farming area. Its manufacturer points out that the labour involved in making small carts and donkey harnesses is just as great as that required for making equipment for bigger animals.

Advice about payloads for carts should be included in extension exercises. The total weight of cart and load for two average donkeys should be about 700 kg (Anderson and Dennis, 1994b). As a rough guide the load on a cart should be equal to the weight of the animals pulling it. If the work involves going up and down hills the loads carried should be reduced.

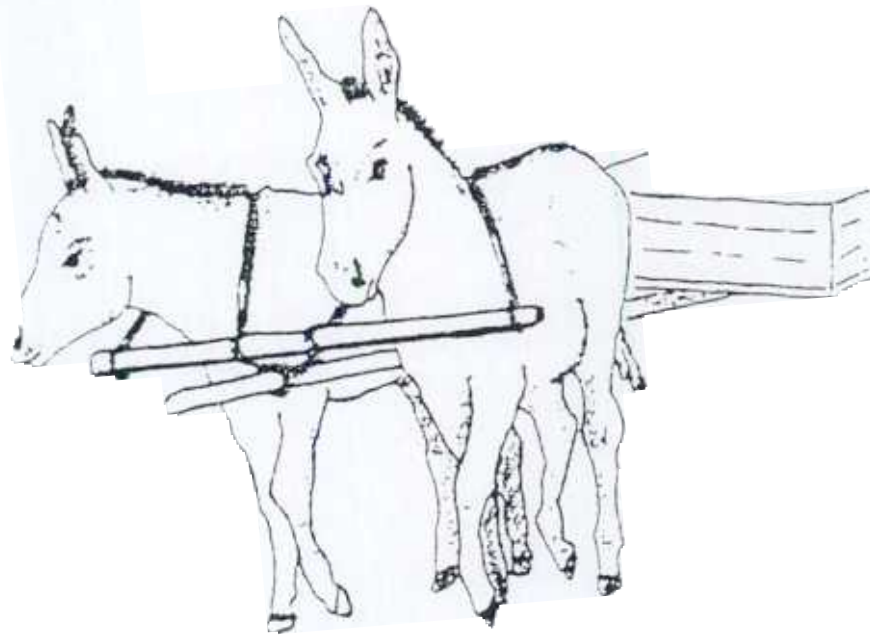
Packing, although not popular in Ciskei, may be more efficient than carting with donkeys when the cost of harnesses and carts is taken into consideration (Jones, 1997). Care must always be taken to ensure that loads are balanced and that the spine is protected.

5.3 Husbandry

Nutrition Communal grazing was the main source of nutrition for all working equids. The information obtained on feeding practices was vague in terms of exact quantities given, but there was a definite tendency for horses to receive supplementary feeding when working while most donkeys did not. This trend is similar to that in other countries (Pradhan, Mahato and Joshi, 1991). The ability of the donkey to utilise a high roughage diet is well documented (Pearson and Merritt, 1991).

The draught power output of any animal is largely a function of its body-weight, provided it is in good health (Pearson and Smith, 1994), so it is in the owner's interest to ensure that it does not get too thin during the dry season. Also it is important to ensure that young animals are given ample feed and the opportunity to grow to their maximum possible size before starting to work. Good handling of young stock may be advisable, but working before the age of three is to be discouraged. The overall efficiency of a draught animal system is greater if a small number of heavy animals is used rather than a large number of light ones. Less harnessing is required and a small team is more easily managed (Pearson, Nengomasha and Krecek, 1995). Many people said that they would like more animals but, bearing in mind that communal grazing is a limited resource, it might be better to concentrate on maximising the efficiency of the number of animals currently owned. Practical advice about supplementary feeding is required, particularly if the working day is long or the animals are kept in at night. Because many donkeys are kraaled at night the time available to them for feeding is curtailed. Owners must be aware of the necessity to compensate for this. It is often said that poor farmers cannot afford to feed their animals well but it should be possible to reserve some crop for animals. Lucerne hay can be purchased for about R15 for a 25 kg bale, while maize meal costs around R77 for 50 kg, and oats R58 for 50 kg. Using these figures as an approximate guide it should not be too difficult for an owner who is earning even R20 per day to give each donkey 0.5 kg concentrates daily when other food is scarce.

Figure Breast-yoke, suspended raps.



gu L yoke suspended from saddles.

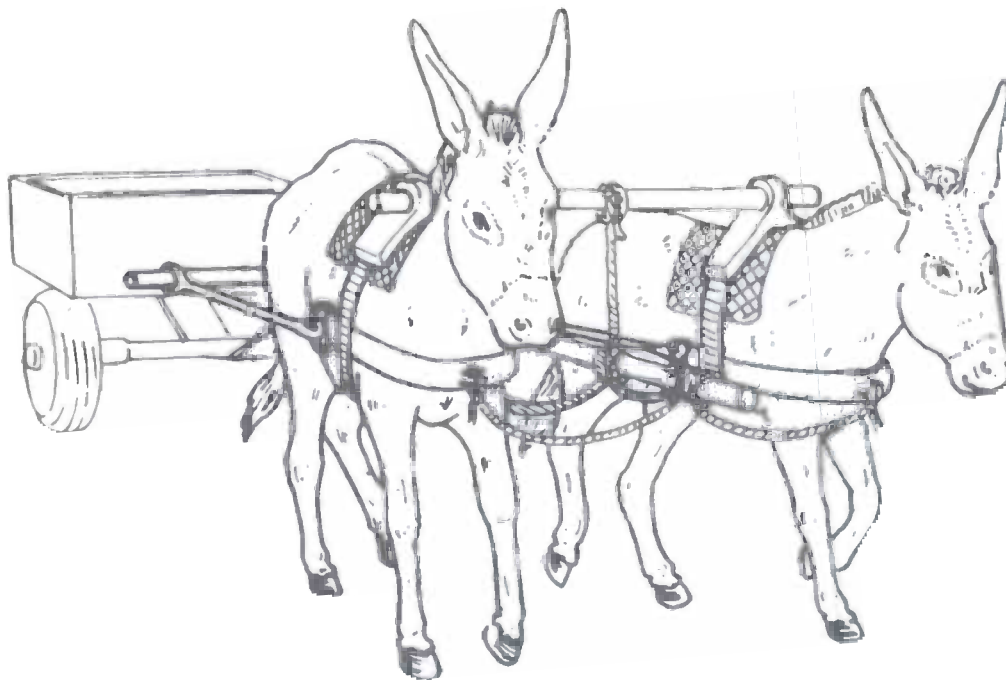


Figure 15. Donkeys hitched in tandem.

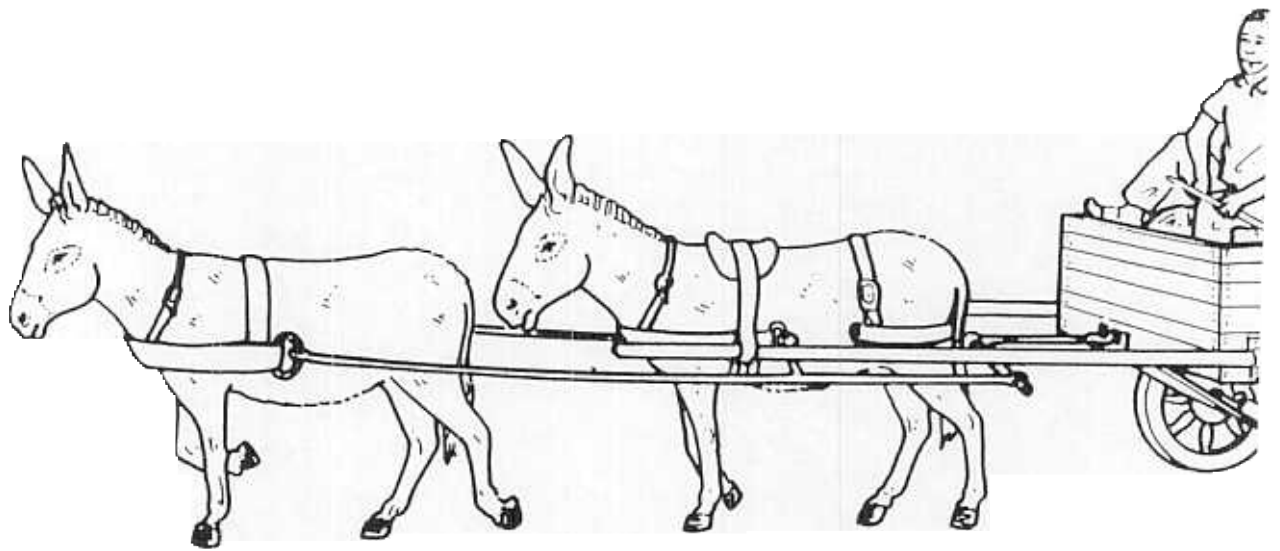


Figure 16. Hitch-cart, Waterford Farm, Underberg.

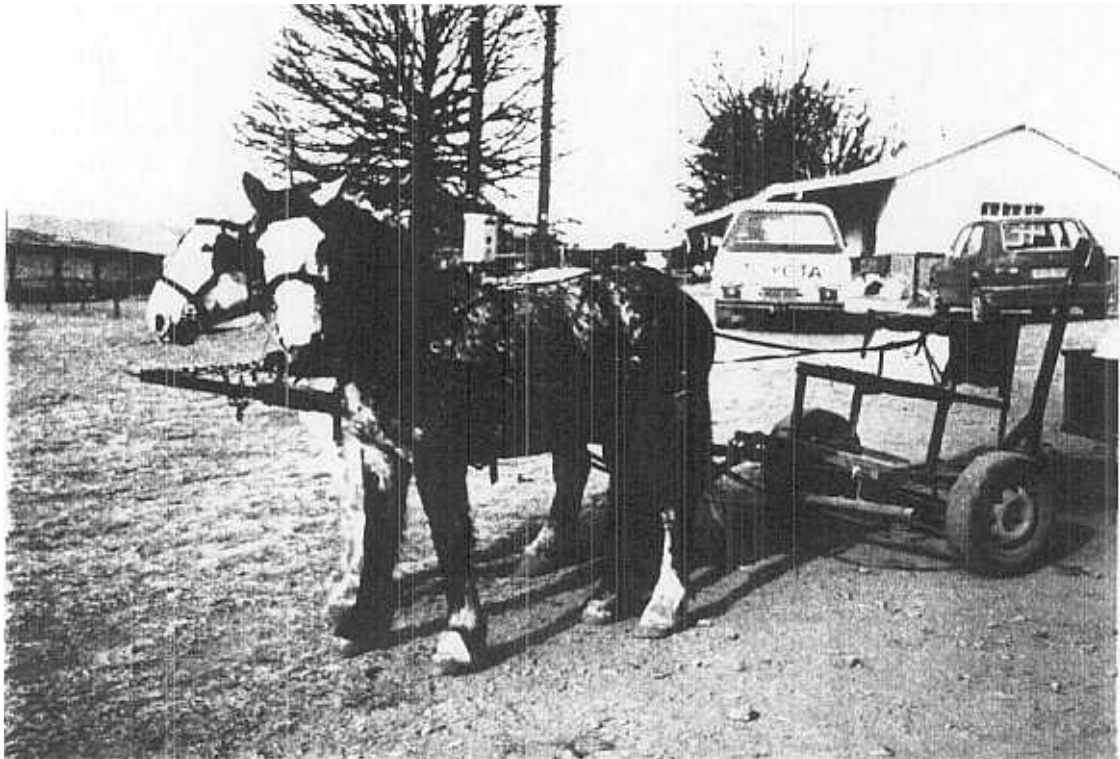


Figure 17. Ox-drawn Golovan cart, University of Fort Hare.

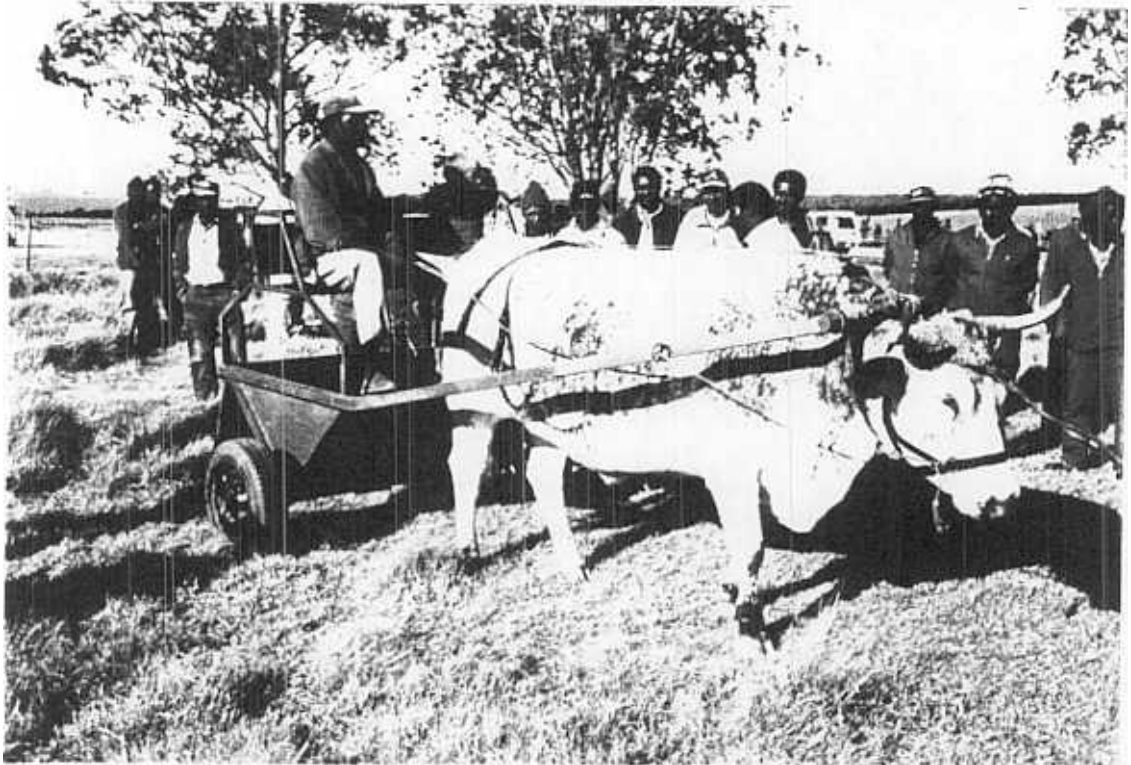
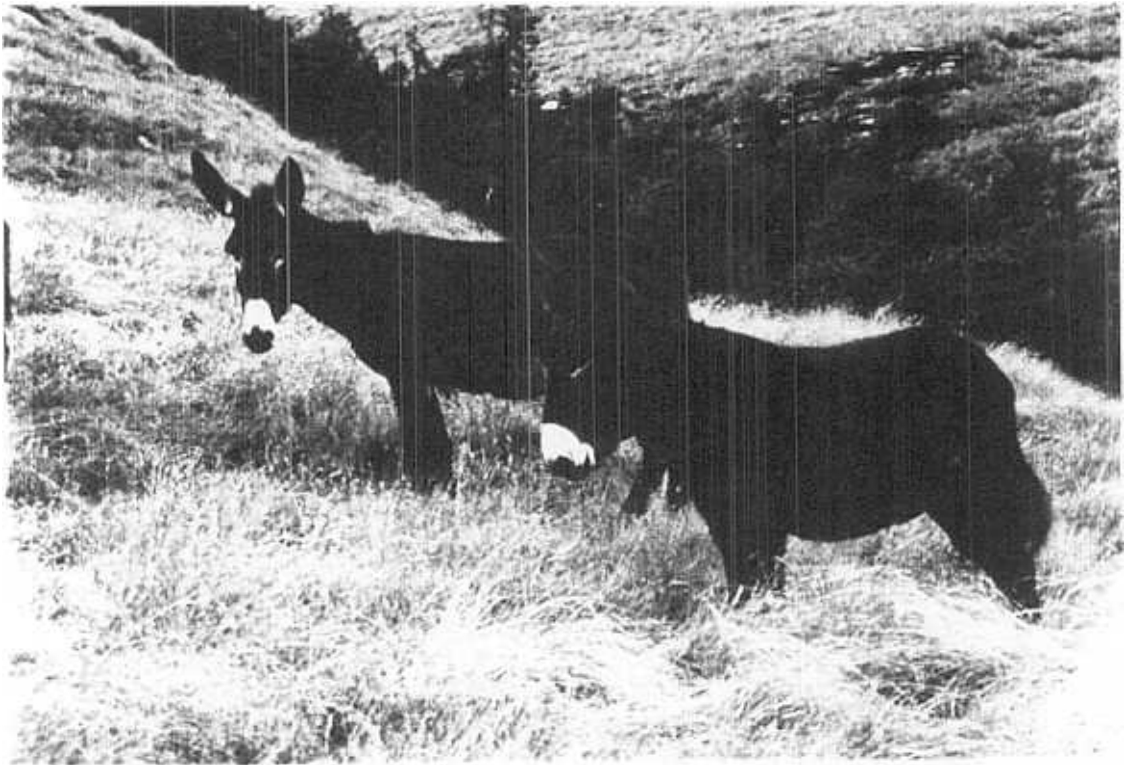


Figure 18. Spanish donkeys, Waterford Farm, Underberg.



Shoeing Shoeing and lameness do not appear to be serious constraints to the use of equids in the Ciskei, which is quite different to the situation in many other developing countries where equids are used for work (Lopez, Chavira and Granillo, 1994). This is probably because very little road work is done. Also it could be that a selection process has ensured that the Eastern Cape horse has strong, hard feet. Horse shoes are available in larger towns but cost around R61 for a set. Skilled blacksmiths are rare but at the present there seems to be little need for such expertise. However it is possible that an assessment carried out by a professional farrier might identify areas for improvement.

Breeding Breeding is largely at random and it can be argued that a natural selection process has been taking place for over 100 years resulting in horses and donkeys which are well adapted to the local conditions. However most villages have relatively small equine populations and, because castration is not carried out until 5-7 years and many people prefer to use entire males for work, it would seem that a high degree of inbreeding is inevitable. The system of communal grazing makes it difficult to control breeding and the co-operation of all equine users would be required to decide which colts to castrate and which to keep as stallions. Even then it cannot be guaranteed that a roaming male won't come from another district (Jones, 1995). The suggestion that local people might breed their own mules is an interesting one which is worth considering. However most commercial mule breeders use the larger Spanish donkey (figure 18) for this purpose and it is said that jacks kept for breeding with horse mares need to be 'brought up' with horses from an early age. Selected local donkey jacks could be used but again the practical problems associated with the communal system where there are no fenced-off areas arise. However controlled breeding of mules, donkeys and horses is possible if people are willing to put some effort into making it work. It may not however be the number one priority at this stage.

Purchasing a Spanish donkey jack to mate with local jennies or a strong stallion to cross with pony mares are other ways to introduce new genetic material to the communal areas. It is important to bear in mind that animals imported to 'upgrade' local stock may not have been exposed to local diseases and may succumb to illnesses such as babesiosis so, before buying in new stock, the disease hazards should be considered carefully.

5.4 Veterinary Problems

Castration As mentioned above some stallions were deliberately not castrated but for many people this was not a matter of choice. There was no one in the area who could provide this service. There is no regular veterinary service in Ciskei at the present so it may be necessary to train local people to castrate. The use of the burdizzo with equids is generally frowned upon by veterinary experts and surgical removal of the testicles is preferred. The burdizzo does have the advantages of not causing any bleeding and not leaving an open wound which could get infected. However if the testicle itself, rather than the cord, is caught in the implement, severe

pain and inflammation of the scrotal region can be expected. If the burdizzo must be used castration should be carried out at an early age when the testicles are small.

Other Health Problems One of the problems encountered here was that some local names are used to describe illnesses although it was often possible to work out which conditions were being referred to from the description of the symptoms. For example 'papiés' was the local term for bots (*Gasterophilus*). A meaningful evaluation of equine health in the region could only be made by somebody who stayed there on a long-term basis.

'Coughing and sudden death' may be due to the pulmonary or 'dunkop' form of African Horse Sickness. African Horse Sickness is a major constraint to keeping horses in other parts of Africa and it does occur in Eastern Cape Province. A vaccine is available and, although it is not 100% effective its use should be promoted with horses. The cost is reasonable (R15-20). Mules are less susceptible than horses and donkeys are thought to be relatively resistant to the virus (Coetzer and Erasmus, 1994). *Babesia* was also mentioned as a cause of illness and death. Animals born in endemic areas will often develop immunity without showing clinical signs if exposed to the disease at an early age (de Waal and van Heerden, 1994). 'Grundling', in which the animal wastes away and dies, possibly refers to a chronic form of babesiosis but this is by no means certain. One case was described which sounded like epizootic lymphangitis (Scott, 1994). No cases of tetanus were mentioned but it would appear sensible to advise tetanus vaccination particularly at castration, a recommendation also made by Canacoo (1991).

Donkeys were perceived to have very few health problems and to live for a long time. This finding was similar to that of other workers (Wells *et al*, 1998).

Most owners attached some importance to tick control, often using cattle dipping time as an opportunity to dip their equids. Care should be taken that equids are not treated with amitraz which is toxic to them (Smith, 1994) although this acaricide is not currently used in Ciskei. Another potential problem to be aware of is that used engine oil, which is commonly applied topically, and may be effective against certain ectoparasites due to its sulphur content (Fielding, 1994), also contains high quantities of lead which is potentially toxic.

Worm treatment was rare and some of the worm egg counts obtained are relatively high suggesting heavy worm burdens. Total egg counts do not always give an accurate assessment of the severity of the worm problem because different worm species produce different numbers of eggs and different species vary in the amount of damage they cause. The question which arises is whether the worms are actually having a serious pathological effect. In this case none of the animals sampled were clinically ill or in particularly poor body condition but it would probably be advisable to promote anthelmintic treatment once or twice a year. Dosing was found to improve the body condition score of donkeys in Morocco (Khallaayoune, 1991) and strategic dosing late in the rainy season and again at the end of the dry season was recommended in Zimbabwe (Pandey and Eysker, 1991). The keeping of donkeys or horses in kraals causes a build-up of worm eggs so owners need to be aware of this

and adopt a control policy such as regular removal of faeces (Matthee and Krecek, 1998). Another problem to be avoided is that of indiscriminate use of anthelmintics resulting in the emergence of resistant parasite strains.

It is often suggested that anthelmintics are prohibitively expensive in developing countries including South Africa (Starkey, 1998) but this is not invariably so. The price for 'Panacur' (fenbendazole) is around R91 for a litre which would be sufficient for 10 horses or 20 donkeys. Similarly acaricide treatment is affordable when judged against the earnings generated by draught animals. 'Deadline' (flumethrin 1%) pour-on costs R63 for 200 ml. This would treat 10 donkeys weighing 200 kg each.

5.5 Extension Methods

Most lessons should have practical and visual components and this must be borne in mind when conducting an extension course. Merely talking to people about harness design or tillage techniques means little to them. Video and poster demonstrations can bring some life to the subject but 'hands-on' practical sessions are most likely to make a lasting impression. Jones (1997) suggests that people should try out their donkeys' harnesses themselves. Krause (1994) mentions that lightweight donkey carts in China are also used as hand carts by people, a fact which should give them more sympathetic approach to balancing loads. Both these ideas deserve attention and could be developed into exercises for extension classes. Participants might be amused at the idea of volunteering to be a temporary draught animal so this should hold their attention.

A simple exercise such as getting the class to carry small loads up a steep hill would show how much more tiring climbing is than walking on a level surface. The importance of using wide straps especially at those points on the animal where pressure is exerted could quite effectively be demonstrated by getting the course participants to carry a very heavy shoulder bag with a wide strap and then carry the same bag with a thin piece of rope replacing the strap. Getting people to pull a heavy cart and then a light one will illustrate the importance of good design more effectively than a lecture on the subject. Similarly getting participants to pull a loaded cart on level ground and then uphill will make them aware of the differences in strength and energy expenditure required for the two types of work. pulling a cart with defective wheels and then comparing it to a well-maintained one would emphasise the need for good care of equipment to ensure an efficient draught animal system. Anyone who has used a supermarket or an airline trolley will appreciate this point. With regard to tillage operations the importance of using a good plough-share as opposed to a worn one could be demonstrated by showing the difference in cutting ability between a sharp and blunt knife.

Even if people are financially constrained it is a good idea to show them new equipment and designs. They may be able to incorporate some of the features into their home-made versions. For example the 'V' shaped Golovan cart ensures that the weight of the load is mainly over the axle and this could be copied by local cart builders.

CONCLUSIONS

- Although they are not indigenous to South Africa, horses, donkeys and mules have made a major contribution to agriculture, transport and cultural events in the past. This tradition provides a good foundation on which to develop their present day use among poorer communities.
- Donkeys and horses were seen to play important roles in communal farming areas. They were involved in land preparation, weeding, planting, carting manure and transport of harvest from the fields. They also have a role in personal transport at a local level and commercial transport of water, fire-wood and building materials.
- The constraints which equine users face include bad harnesses, heavy equipment, lack of advice on feeding and lack of veterinary services.
- To some extent equids are under-utilised and could be employed for other tasks but, perhaps more significantly, they are often used inefficiently. Examples of this include being harnessed together carelessly and wasting energy pulling carts which are very heavy even when empty.

At present emphasis should be placed on maximising the efficiency of the horses and donkeys currently available. Heavy horses do not appear to be suitable for communal farmers but mule breeding at a local level may be worth considering.

Effective animal traction extension requires continued close co-operation with the farmers and carters themselves and regular monitoring of any progress made. At the moment extension needs appear to include the following:

- Education and practical demonstrations about making simple but effective harnesses and carts.
- Practical demonstrations to show appropriate tillage systems.
- Simple advice on feeding.
- Practical information on basic health care, castration and parasite control.
- Basic information about selecting an animal for work and how to estimate age by looking at the teeth.

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Appendix 1.

Interview Check-list.

What type of equids are kept?

How many are kept?

What ages are they?

How many mares, stallions and geldings are there?

Why are equids kept?

What are the advantages of ownership?

Is there any interest in getting mules or heavy horses?

Does anyone consider breeding mules?

What work is done by equids? eg. ploughing, weeding, transport, carting, packing or riding.

Any other functions? eg. herding, racing, hunting, weddings, lobola, meat, leather.

How much are equids worth?

How much can they earn?

What age are they trained at?

How long do they remain in use?

What is their life expectancy?

Is any supplementary feeding given?

Is stock-theft a problem?

Are equids ever kept in kraals?

Are there any problems with lameness?

Is any hoof-care or shoeing carried out?

Is breeding planned?

What age does breeding start at?

How many foals could a mare have?

Are there any problems with foaling?

What age are stallions when they are castrated?

How is the operation performed?

Are there any problems?

What veterinary help is available?

What illnesses are most common?

Are any vaccines used?

What treatments are used?

Are there any problems with parasites? eg. worms and ticks.

Are there any problems with harness sores or working injuries?