

# A note on a donkey harnessing problem and innovation in Zimbabwe

by

Peta A Jones

Teaching and Consultancy Services, Private Bag 5713, Binga, Zimbabwe

## Abstract

*The only animal-drawn cart available to ordinary farmers in Zimbabwe (the two-wheel, single-shaft "scotchcart") is not suitable for use with two harnessed donkeys: the cart has a long draw pole designed to be pulled by an ox yoke. There are no attachments to allow the donkeys to draw from the cart itself. Moreover, because the cart has only two wheels, a poorly distributed load can force the shaft down, placing great weight on the donkeys' necks. As a result, efficiency can be reduced to such an extent that a third donkey is needed, making the whole thing lop-sided and awkward.*

*A new method of harnessing donkeys to the cart is described in this paper. It uses a breast band harness on the hind quarters of the animal in addition to the breast band over the chest; this second harness acts as both breach strap and saddle. Chains from this harness are then attached to swingles and eveners at both back and front.*

*This new harness is cheap and easy to make, and should dramatically improve the donkeys' performance. This innovation has yet to be fully tested by farmers, but it is hoped that it will be accepted quickly and subsequently widely adopted by donkey owners.*

## The problem

An ordinary farmer in Zimbabwe currently has access to only one kind of animal-drawn vehicle—the two-wheel, single-shaft "scotchcart" (Figure 1). This cart is designed for oxen. Some models are smaller than others and could be used by

smaller animals such as donkeys but even these are basically "ox carts" not "donkey carts". Most have little or no provision for a pulling point in the middle of the front of the cart. Often they only have hooks at the outside front corners, with bars running from these corners to a point some distance up the shaft. The shaft, or disselboom, ends with a metal gadget looped both forwards and upwards (Figure 1). Most scotchcarts are modified in some way by their users.

For donkeys, the farmer again has access to only one type of harness, mass-produced to a standard size (although two sizes are sometimes available) and made of strips of rubberised canvas machine or conveyor belting, bolted together (Photo 1). The only way to adapt this harness is to move the bolts, but making big enough holes in the belting is extremely difficult without proper tools, and most farmers do not try. When the belting breaks, it is mended with wire.

Chains with rings at one end in standard size for donkeys are also widely obtainable, but the design of the scotchcart does not seem to lend itself to any easy attachment of two harnessed donkeys. The usual solution is to attach the donkeys to the front of the shaft by the centre of a shared wooden yoke under their necks, linked over their necks by a belt (Photo 1). The cart is pulled by chains attached—in four places for two donkeys—to a single pole wired

Figure 1: Standard Zimbabwe "scotchcart" more suited for use with oxen than donkeys

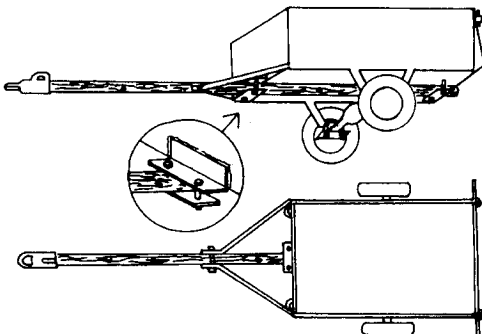


Photo 1: An example of "the problem": the common and inefficient system of harnessing donkeys to "scotchcarts" in Zimbabwe

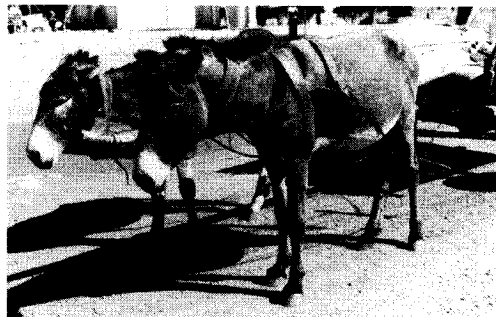


Photo: Paul Stankey

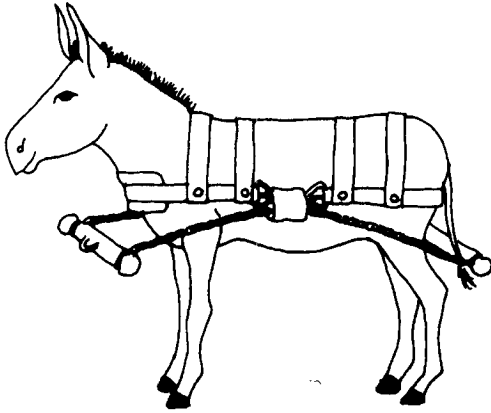


Figure 2: Donkey harnesses with a breast strap and with a second breast strap used as a breech strap, both fitted with swingles

by the farmer at right angles to the shaft and firmly to the front of the cart. Very often, three donkeys are used abreast, so the whole thing becomes lop-sided, with two donkeys on one side of the shaft, and only one on the other.

As the cart has only two wheels, the level of the front of the shaft depends very much on the distribution of the cart's load, and the weight on the donkeys' necks can be considerable, reducing their efficiency to such an extent that a third donkey is often required. In addition, the carts are used without a breech band to take the weight of the cart on down slopes: the yoke takes it all. Only a donkey's patience could endure all this.

Aside from the obvious effect on the donkeys, it does not take sophisticated instruments to detect that the whole thing is awkward and inefficient. The donkeys strain and stumble, even with an empty cart.

### Solutions

One might recommend harness and collars whose production is well within the capability of village technology (Jones, 1991). However, farmers are not looking for radical changes and farmers themselves are not necessarily skilled craft workers. Even if they were technically competent in the skills of collar production, they would have little time to make what they need.

A compromise needs to be sought between what is known, what is easily obtainable, and what is most comfortable for the donkey and can thus lead to greater efficiency. The criteria should obviously be ease of contrivance, speed of contrivance and cheapness.

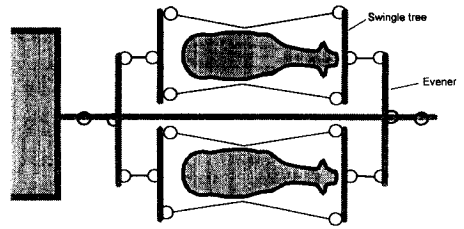


Figure 3: System of arranging swingle trees and eveners for cart pulling

A method developed by the author and a neighbour involves using a breast-band harness on the hind quarters of the donkey in addition to the one over the chest. The one at the back then acts as both breech strap and saddle, although it lacks a girth (see Figure 2). This does not seem to be much of a problem at the moment; perhaps at some later stage a saddle-girth arrangement could be suggested, which would also solve the problem of the crossing chains against the animal's sides. At the moment, a simple hessian sleeve is the proposed solution for this: this seems uncomplicated and appears to work well.

Additional swingles and an evener are, of course, correspondingly required at the front (Figure 3). There is nothing difficult about these, they are the same as those required for the back. The real problem is finding a part of the cart on which to attach the back evener.

### Transferring the technology

Given the dramatic improvement in the donkeys' performance, and also the availability of the materials and technology, it is hoped that donkey owners will adopt the method widely and quickly. The extra expense is minimal—not more than 20 Zimbabwe dollars (≈US\$ 4) a donkey at current prices—and would soon be recouped as a result of the increased efficiency.

The drawings included in this paper are to be incorporated into an extension leaflet for wide distribution. The donkey manual (Jones, 1991) will also be updated. A short video illustrating this harnessing technology has been made and enquiries about this may be addressed to the author.

### Reference

- Jones P A, 1991. *Training course manual on the use of donkeys in agriculture in Zimbabwe*. Agritex Institute of Agricultural Engineering, Borrowdale, Harare, Zimbabwe. 81p.