

# **HARNESSING AND HITCHING DONKEYS, MULES AND HORSES FOR WORK**

by

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## Introduction

Donkeys play an important role in rural communities providing power and transport at low cost. They can be used for various agricultural operations such as ploughing, planting and weeding. They also provide the much-needed transport in rural areas for activities such as carrying water, building materials, agricultural products and people. Horses and mules are also used in field work and in transport, providing a faster and more powerful animal for work, but one which is more costly to buy and maintain than a donkey.

The efficient use of working animals depends on how they are connected to the implement they are pulling, or the materials they are carrying, and how well they have been trained and are managed. This booklet discusses the harness designs and hitching systems that will allow efficient transfer of power from the animal to the implement or load, while allowing the animals to work comfortably and without injury.

### ***What is a harness?***

A harness is a system or a device that is fitted on the body of the working animal. A harness has several functions:

- To control the working animal
- To transfer/transmit power from the animal to the attached implement
- To hold in place any load carried
- To act as a braking system when pulling a cart.

A properly designed, well-fitted and comfortable harness allows the working animal to pull the equipment to the best of its ability without risk of injuries. A poorly designed or ill-fitted harness can cause inefficient transfer of power from the animal to the implement, and fatigue, discomfort or injury to the animal.

A good harness has therefore, the following characteristics:

- Transmits efficiently the pulling energy from the working animal directly to the attached equipment
- Is smoothly-shaped, broad or padded so that the loads/forces on the animal's body are spread over a large area
- Does not have sharp edges which could injure the animal
- Has joints on the outside, away from the animal's skin
- Fits well so it does not cause rubbing, chaffing or wounds on the skin caused by excessive movement or friction

- Does not impede the animal's movement or natural functions such as breathing or restrict the blood supply to the tissues
- Is affordable, durable, and easy to maintain and clean.

### ***What is hitching?***

Hitching is the way in which the animal or animals are connected to the implement or cart that they are pulling and to other animals in the team. Hitching is important. If the animals are too close to the implements they can get injured, if too far away they can be difficult to control and efficiency of working may be reduced.



## **Halters and bridles**

These are used to control the donkey, mule or horse.

Controlling an animal's head is the best way to control it. Animals tend to follow their heads when they are moving, so control of their heads will result in control over their body direction. To achieve this control, a halter (no bit and head rope Fig. 1) is fitted on to the head of the donkey, mule or horse. By pulling the rope or a rein, the direction of travel is controlled.

A halter consists of a simple head piece and noseband with a single rope (or two reins) attached. It fits over the animal's ears and nose (Fig. 1). The headpiece is normally made of leather or strong webbing and should have buckles or ties so it can be adjusted for proper fitting to individual animals. Care should be taken to avoid the side pieces of the halter rubbing against the animal's eyes and the pieces around the nose and throat should not be so tight they prevent movement or constrict breathing. A halter can also be made from a rope (Fig. 2).

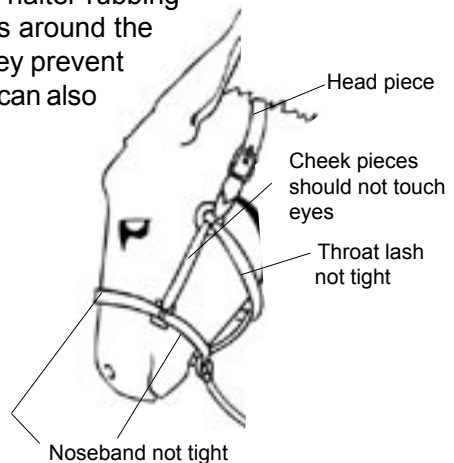


Fig. 1: A webbing or leather halter

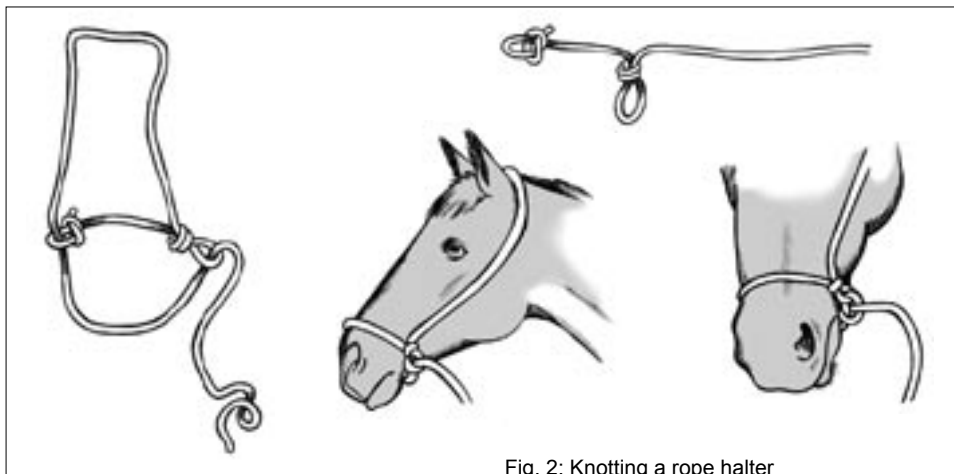


Fig. 2: Knotting a rope halter



For driving and riding especially on the roads, a more rapid response is some times needed when controlling speed and direction. This is achieved through control of the mouth end of the jaw by a bit, a metal piece, which fits in the animal's mouth so that the head can be turned or the pace can be slowed easily and gently. This harness is called a bridle (Fig. 3). A bridle consists of a headpiece, a noseband, a bit and reins. The bit is held in the mouth by cheek pieces attached to the rings of the bit and the headpiece. At the end of the bit are metal rings where the reins are attached.



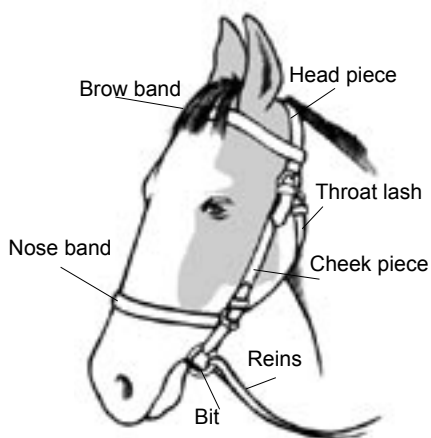
Fig. 3: A bridle without blinkers



Fig. 4: A bridle with blinkers

Pulling on either rein acts on the mouth to control the animal's direction and speed. Blinkers are optional and should not be used unless absolutely necessary. When fitted, they help to restrict the animal's field of vision so that it is neither distracted nor alarmed by objects and activities behind or beside it (Fig. 4).

Donkeys can usually be controlled without using a bit in the mouth, especially if they are well trained, so halters are mostly suitable for them, with a rope or reins attached to the noseband. Strong donkeys may need a bit especially when on the roads in traffic.



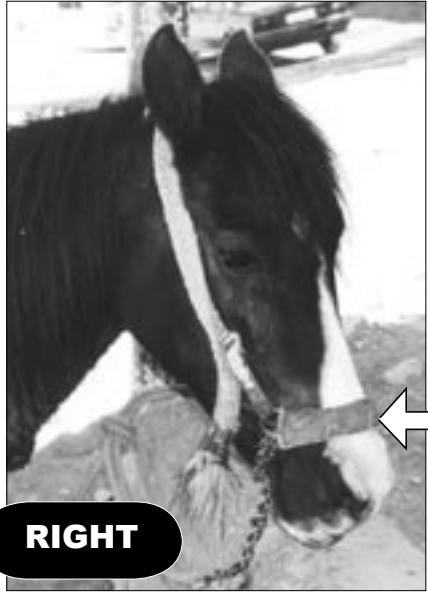
Horses, and mules, being larger and stronger are more easily controlled using a bridle and bit although a halter can be used on quiet, well-trained animals instead.



## Materials for halters and bridles

Halters and bridles can be made from rope (Fig. 2) or webbing, preferably cotton (Fig. 1) or leather (Figs. 3 and 4). They should not be made from wire, chain or other materials which will rub and cut the skin or mouth. If chain is found in use, it can be covered by padding over the nose band.

**RIGHT**

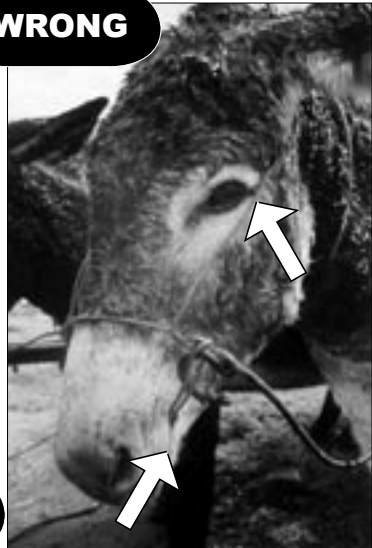


**RIGHT**



**WRONG**

**WRONG**



## Correct fitting of a bit and a bridle

It is desirable to use a snaffle bit for the donkey or horse. The snaffle bit can be a straight bar or have a joint in the centre (Fig. 5). This bit is kind to the donkey or horse's mouth. Make sure it is put in the mouth the right way round, with the inside curve of the bit to the back of the mouth so the bit ring is flat against the side of the animal's head. Do not make a bit out of a wire. This will cut the animal's mouth, tongue and lips and make the mouth very sore and the animal difficult to handle. The bit must not be attached high up into your animal's mouth or too low. It needs to rest snugly in the corners of the mouth, just wrinkling the corners of the lips. This means it does not keep hitting the teeth (too low) or pinching the corners of the mouth (too high). Bridles for well trained animals can be simple (Fig. 6).

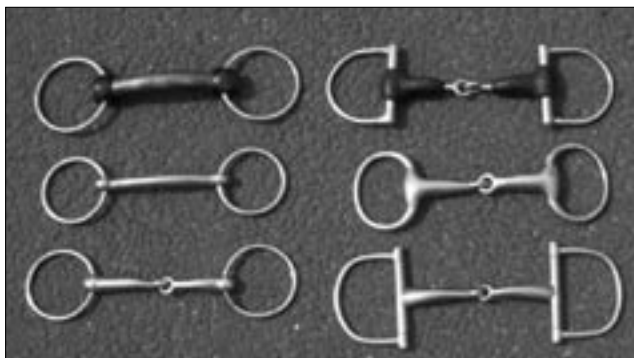


Fig. 5: Some snaffle bits



Fig. 6: Simple bridles

The throat strap on the bridle must not be fastened tight. For a horse allow it to be loose enough to fit the width of your hand between it and the jawbone. The strap around the nose should be slack enough to fit in three finger widths. This is less for the smaller donkey. The browband should be straight and not in the animal's eyes. If blinkers are used they should be stiff and fitted to the cheek pieces level with the eyes. They must not touch the eyes, or rub the head, but should cover the eye area well. They should be made out of leather, not metal or plastic.



#### SUMMARY

The parts of the halter or bridle in contact with the animal should feel smooth to the touch, especially at joints and fastenings. The joints should be on the outside away from the animal. If a bit is used it should only be a snaffle bit. The correct fit as described above is also important so the animal can work comfortably and without injury.





## Types of harness system and materials

There are two main types of harnesses used for donkeys, mules and horses when pulling implements or carts. These are:

- The breastband harness
- The collar harness

Due to the anatomy of the donkey, mule and horse, power is generated from the chest rather than from the neck and therefore these animals should never use a neck yoke. This is because the neck is weak and its skin highly susceptible to injuries.

The pack saddle is used when a donkey, mule or horse is used to carry loads. The saddle harness attaches the saddle to the animal.

The breeching harness is fitted when an animal is pulling a cart to act as the braking system. It is not needed when pulling field implements, except those with two wheels (e.g. sprayer).

### **(a) The breastband harness**

The breastband harness is a simple design and can be made from cheap and locally available materials. It can be adopted for various work activities such as pulling a cart or cultivation implement. The breastband harness can be made from the following materials:

- Canvas belting materials
- Thick cotton webbing
- Leather

The joints may be stitched using a strong thread or thin, supple wire or joined by bolts. If wire is used for stitching, then at the animal side it must be embedded in the material so it does

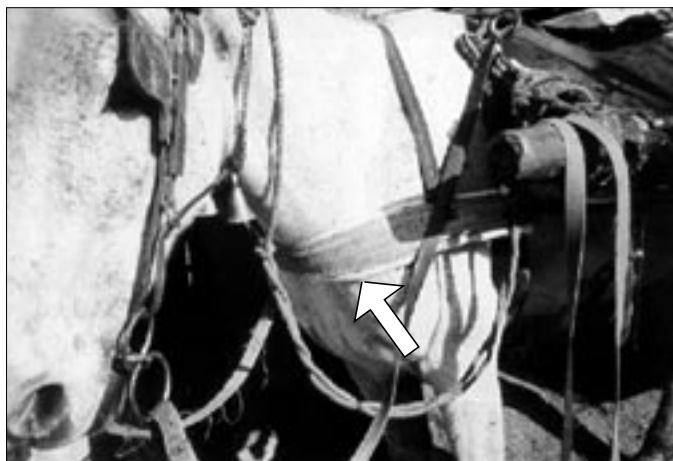


Fig. 7: The breastband harness on a donkey



Fig. 8: The breastband harness on a horse

not touch the skin. If bolts are used the head of the bolt must be on the animal side, and must be round, smooth and padded so it does not rub the animal. Buckles may be provided as shown in Fig. 9. Buckles are normally used to allow for adjusting

the length of the straps so that the harness can fit different sizes of animals. Care must be taken to ensure the best fit over the animal. If the harness is too small for the animal wearing it, it can cause pressure on the animal's throat, obstructing its breathing. Alternatively, when it is too loose, it tends to cause rubbing and

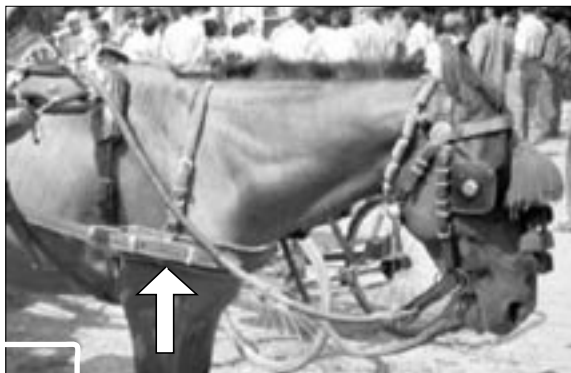


Fig. 9: Stitched joints with buckles

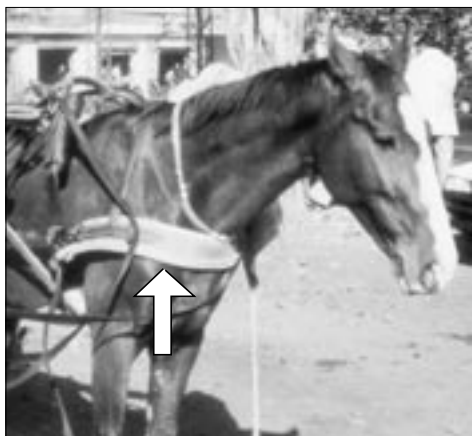
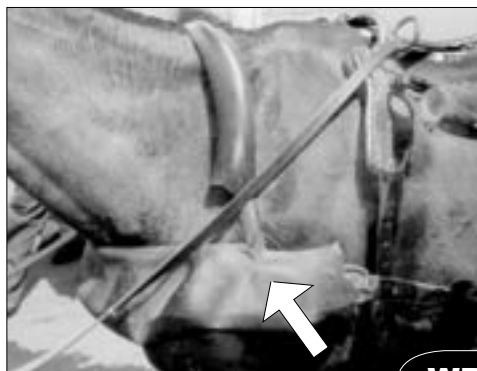


Fig. 10: Padding of breast strap

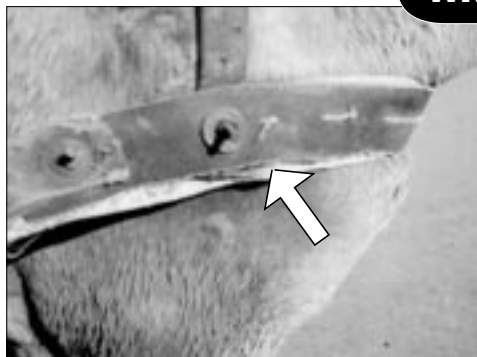
wounds. The sharp edges of the belting, unless they are filed or padded, can cause injury to the animal. The sharp edges can also catch the animal's hair and irritate the skin. Sharp edges should always be avoided. Once the harness is stitched, wrap the breast strap with jute sacking, sheepskin or heavy cotton cloth for padding (Fig. 10), do not use synthetic materials as they rub.



**RIGHT**



**WRONG**



It is best that the harness be manufactured using locally available materials and skills. It is not necessary to use only one material. A mixture can be used, with the strongest for the breast strap and breeching and the lighter for the saddle straps and girths. For example where leather is expensive a mixture of leather and webbing can be used – leather for the breast strap and buckle attachments and webbing for the rest.

When a different material is being introduced to replace a poorer one, it is important to ensure that the local artisans are well trained and are able to use the material well to ensure a smooth finish to the harness.

#### SUMMARY

**Breast straps should be padded and when fitting the harness to the animals, make sure that bolt ends are always kept away from the animal's body and any stitching is on the outside of the breast strap, not in contact with the animal. Always remember to make sure that a harness is fitted properly on the animal, not too loose or too tight.**

#### **(b) The collar harness**

Collar harnesses may be classified as either full-collar or split-collar. The full collar harness is commonly used with horses and tends to be expensive (Fig. 11). The split collar harness with two vertical hames joined at the top and bottom, is more versatile and is widely used for donkeys and mules (Fig.12). The collar harness can be made from the following materials:

- Wood
- Leather and metal



Fig. 11 (left): A full-collar harness made out of leather with metal hames

Fig. 12 (below): A split-collar straight hame wooden harness



The collar harness has the disadvantage of being more complex in design than the breastband. The advantage of a collar harness is that it is good for work at high draught forces, it spreads the force of pulling over a wider surface of contact with the animal than a breastband harness. It can be fitted exactly in front of the shoulders on the chest area and adjusted for comfort.

#### SUMMARY

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**The collar harness should not be too big or too small for the animal, but should sit comfortably in front of the shoulders. Padding must be used between the hames and the animal.**

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### ***(c) The pack saddle harness***

The saddle harness enables donkeys, horses, and mules to carry substantial loads on their backs. The saddle is usually made out of wood. It consists of two X-shaped pieces of wood, which have been attached to two oval support pads (Fig. 13). Padding is used between the pack saddle and the animal's back. The harness may have three or four straps for belly, breast and hind quarters to keep it in place (Fig. 13).

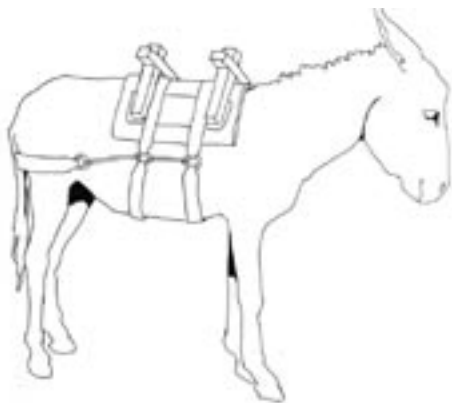
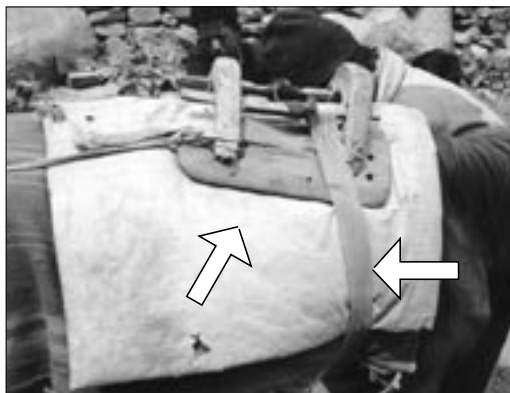


Fig. 13: The sawbuck saddle harness

The straps should be of leather, webbing or canvas. Thin ropes can cut and rub the animals and these, and synthetic or plastic materials must not be used. The straps should be properly adjusted so that they fit well without restraining the animal's breathing or causing skin sores. Bags, baskets, panniers or other containers can be attached to the saddle by hanging them from the arms of the wooden frame.

Padding should be used between the pack saddle and the animal's back (Fig. 14). If the padding is broad this helps to distribute the pressure of the load over a wider surface of the back, reducing the chances of sores. This is important especially when carrying hard loads such as bricks. The materials in direct contact with the back of the animal should be soft. Hard or abrasive materials should not press directly on the back of the animal otherwise sores occur quickly. Natural materials are best for padding such as cotton (bags of which can be stuffed with straw or foam), wool blankets and sheepskin.





Plastic and synthetic materials such as nylon sacking are worst and animals always get sores if these are used.

For information on loading see Pack transport on page 18.

#### SUMMARY

**Natural (not synthetic) padding must be used between the animal and the pack saddle to ensure the weight of the load rests on the ribs and not on the backbone. Straps securing the saddle should be wide.**

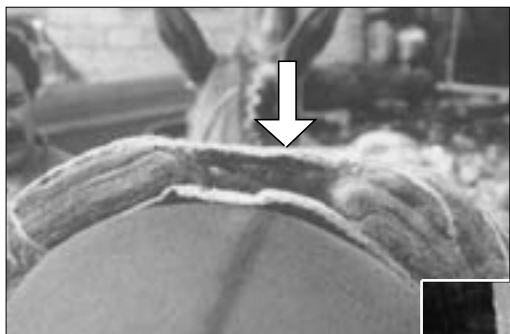


Fig. 14 (above): Padding between pack saddle and the animal's back

Fig. 15 (left): A good pack saddle with space between backbone and load

**RIGHT**



**WRONG**



# Harnessing and hitching tillage implements for land preparation

## ***(a) Hitching a single animal***

The two commonly used harnesses for pulling implements for agricultural operations are the breastband harness and the collar harness described above. To convey the animal's power to the implement, a leather or webbing strap, rope or chain is attached to a ring or buckle of the harness at each side of the animal and the other ends of these are connected to a bar behind the animal. The bar is a piece of wood with rings or grooves to which the ropes or chains are attached. The bar is called a 'swingletree' while the two ropes or chains are called 'traces'. A ring in the centre of the swingletree is connected to the implement (Fig.16). The traces should be long enough that the hind legs do not bang into the swingletree when the animal is moving. If chain is used for traces, to prevent rubbing on the hind legs and sides when turning at the end of rows it should be put inside a piece of old rubber or plastic hose pipe.

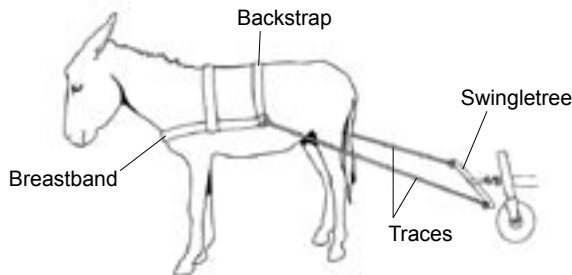


Fig. 16: Single animal hitched to an implement



Fig. 17: Breastband, swingletrees and traces on a pair of horses

The use of a swingletree is very important when connecting an animal to an implement or to a cart. It is important that working animals are not restricted in their movements and that rubbing of the skin is prevented. When walking and pulling, the legs and shoulders of an animal move alternately in respect to the body. The ends of the breast straps follow this movement.

By allowing the traces to make the same movements, the harness will stay in place as the pull on both sides remains equal and consequently rubbing of the skin is prevented. This movement of the traces is made possible by tying them to the swingletree and not directly to the cart or implement.

### ***(b) Hitching a pair of animals abreast (side-by-side)***

If the horses, mules or donkeys are used in pairs, an additional crossbeam called the 'evener' is made and attached behind the two swingletrees as shown in Fig. 18. The implement is normally connected to and pulled from the centre of the evener, but if one animal is stronger than the other, the connection to the implement should be attached closer to the side of the stronger animal to 'even out' the work of animals with different strengths (Fig. 19).

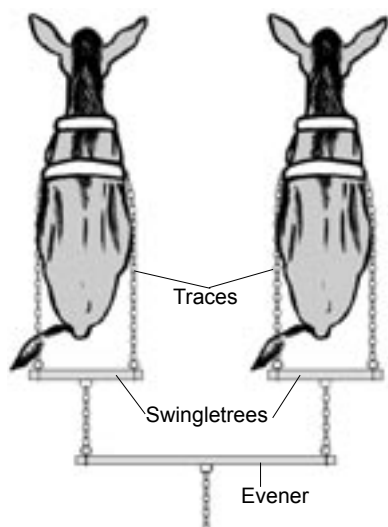


Fig. 18: Two animals hitched abreast.  
Evener for use with two animals

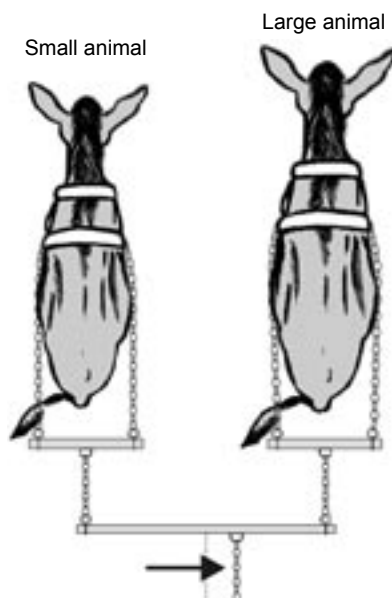


Fig. 19: Adjustment to evener when working a large with smaller animal

### ***(c) Hitching animals in tandem (one in front of the other), and teams***

It is important to note that the number of animals used in a hitched team, i.e. arranged in tandem, does not necessarily represent a multiplication by that number of animal's strength or power. The greater the number of animals used in a team, the less power each animal provides.

When two animals are hitched in tandem, it is desirable to make both of them pull on the same swingletree, behind the back animal (Fig. 20). The front animal should have long traces.

When teams of four animals are used, two in front and two at the back, then the front pair should pull through their swingletrees on an evener which is positioned in front of the back two animals (Fig. 21). The front evener is attached to the rear evener and this to the implement or cart. This arrangement ensures that the force generated by animals goes straight to pull the cart or the implement.

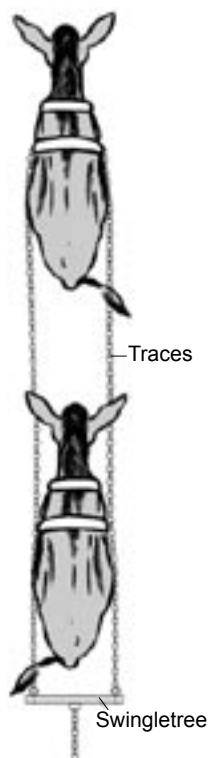


Fig. 20: Two animals in tandem for pulling field implements, e.g. weeders

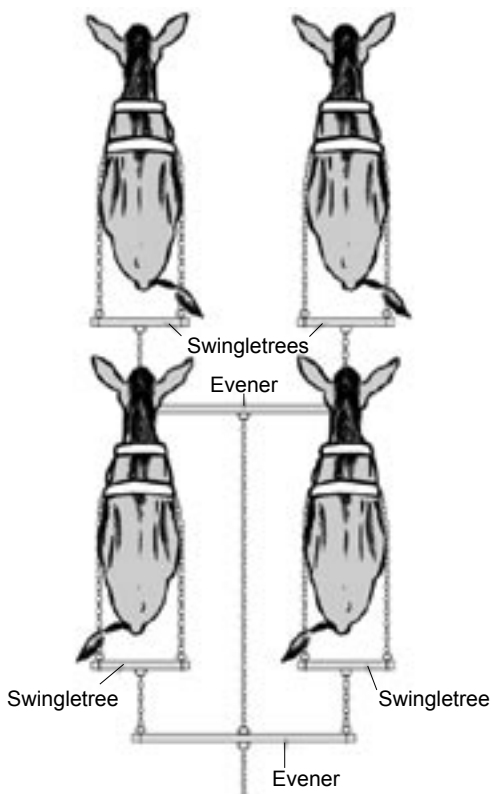


Fig. 21: Four animals hitched in tandem for pulling field implements

## SUMMARY

Always use swingletrees (one animal) or swingletree trees and evener (two animals) between the animal(s) and implement when pulling. Match animals for size in pairs, if different sizes then adjust the evener. Never hitch the traces directly to the implement.





## Hitching systems for pack transport and carting

### **(a) Pack transport**

Donkeys especially play a very important role in both rural and urban communities through the carrying of goods and people. An individual donkey can carry more than one third of its body weight (i.e. between 40–80 kg), twice as much the human beings can carry, relieving women of much of their time and energy consuming work. Donkeys can be used to carry people, water, firewood, manure and farm inputs and produce. Mules too make excellent pack as well as riding animals. Being larger and stronger they can carry more, but are more expensive to maintain than a donkey.

Pack harnesses can be very simple to manufacture. The pack load is taken in the middle of an animal's back. There are three very important things to remember when carrying loads on the back of the animals (i.e. pack transport):

- Load balancing
- Back padding and
- Protection of the backbone

All loads should be balanced evenly with similar weight and bulk on either side of the animal so that the animal is comfortable. If the load is not balanced the animal uses more energy in carrying it and gets tired quickly.

Padding should be arranged so it is thickest along the sides of the backbone, so it lifts the load away from the backbone. It is important that the pressure of the load is not directly on the backbone, but on the muscles at the sides of the backbone. Animals in good condition have good muscle and even some fat here to act as natural cushioning. Thin animals have little natural padding and therefore need even better padding to prevent sores occurring, than do the animals that are in better condition.

Pack transport can be facilitated by the use of the following carrying equipment which can be used with the pack saddle:

- Saddle bags (made from canvas or leather materials)
- 'Soggie' bags (woven from palm or grass)
- Sisal made sacks
- Panniers used with a sawbuck saddle
- Jerry cans or water drums



Fig. 22 Sawbuck saddles with drums

## SUMMARY

**Make sure that the load is balanced on each side of the animal equally, it is not pressing on the backbone of the animal and the straps are not cutting into or rubbing the animal, but are broad and smooth with padding if necessary.**



Fig. 23: Simple saddle bags



Fig. 24: Wood carried on padded sack



Fig. 25: Water cans

### ***(b) Hitching a single animal pulling a two-shaft cart***

The breastband or collar, traces and swingletree are used when harnessing a donkey, mule or horse to a cart as in the harnessing for land preparation, but some additions are necessary.

- When using a single animal to pull a cart, it is important to make use of a saddle harness. The saddle takes the vertical force of the weight when it occurs. The saddle also takes the weight off the spine and transfers it to the ribs of the animal. With this arrangement, the weight of the cart is transferred onto the back of the animal, which is stronger and therefore more suited to carry loads than the neck (Fig. 26).
- A girth strap should be used to prevent the cart from tipping backwards when an unbalanced load is applied (Fig. 26).
- It is important to use a breeching strap, which provides a brake for the cart, to stop it running forward into the animal when it stops. This is very important as it prevents injury to the animal. It is also useful to enable the animal to push the cart backwards (Figs. 26, 28, 29).
- The shafts of the cart are also important. They help turn the cart. They should be long enough for the animal to fit in to the cart with enough space for the swingletree to fit behind, and for the animal to still be able to use its body on the sides of the shafts to turn the cart when required. The shafts are attached to the saddle and transmit the vertical load of the two-wheeled cart to the saddle over the back.

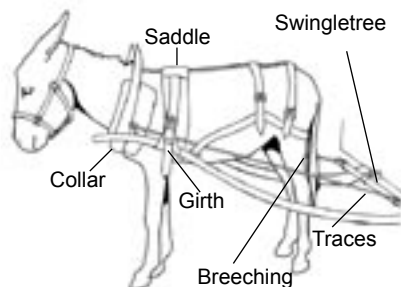


Fig. 26: Hitching a single animal for carting



- The traces should be long enough so that the animal's hind legs do not hit the back of the cart or the swingletree when it is moving.

Fig. 27: A donkey with a two shaft cart



■ It is important to make sure that the load is balanced on the cart so that there is little weight on the saddle, but the cart will not tip backwards.



Fig. 28:  
A saddle and  
girth strap,  
traces and  
breeching

Fig. 29:  
Breeching on a  
donkey



### **(c) Breeching**

The breeching strap is a wide band, which passes around the animal's hindquarters about half way between the base of the tail and the hocks. If it is too low it restricts movement of the hind legs. It should be broad to spread the load when stopping and can be made from leather, webbing or canvas. It is usually held in place by straps across the top of the hind quarters behind the point of the hip (Figs. 28, 29, 30). The breeching strap is connected directly to the shafts at each side by chains or straps about level with the end of the ribs of the animal, in front of the hind leg. It can be connected to the breastband harness, which is connected to the shafts, but this attachment is usually seen when a pair of animals is hitched to a single shafted cart.

Correct adjustment of the breeching strap is important. It should not be too tight or too loose. When the traces from the swingletree to the breastband or collar are tight then there should be a hands-width between the breeching strap and

the rump. To get the correct distance, adjust the length of the traces between the swingletree and the breastband or collar harness, or adjust the breeching strap.

The false breeching strap is a simpler alternative to the breeching strap (Fig. 31). It is not attached to the animal, but across the shafts of the cart behind the animal about a hands-width behind it when the

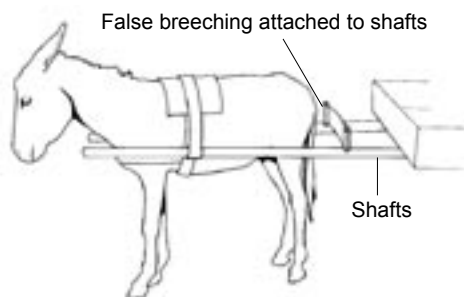


Fig. 31: False breeching

the base of the tail otherwise the false breeching will be in the wrong place and may injure the animal and not brake the cart.

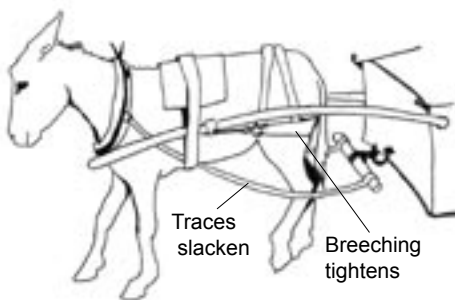
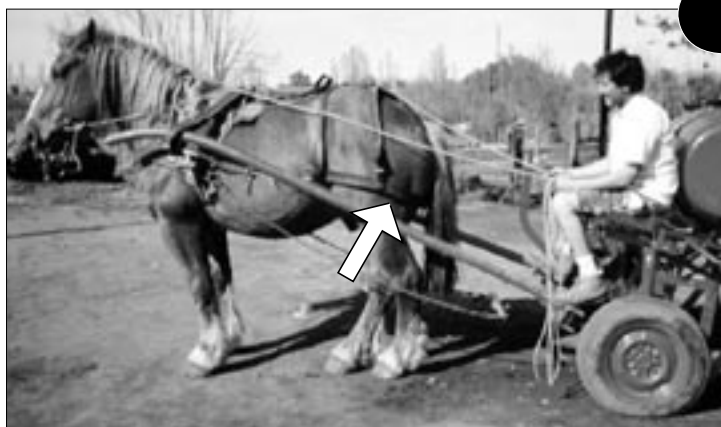


Fig. 30: Going down hill – with breeching on cart

traces are tight. To obtain the correct distance, adjust the length of the traces between the swingletree and breastband or collar harness. This distance gives enough space not to touch the animal when it is pulling, but close enough to come into contact with the animal's hind quarters when it is stopping or going down hill. This can only be used if the shafts are level with half way between the hocks and



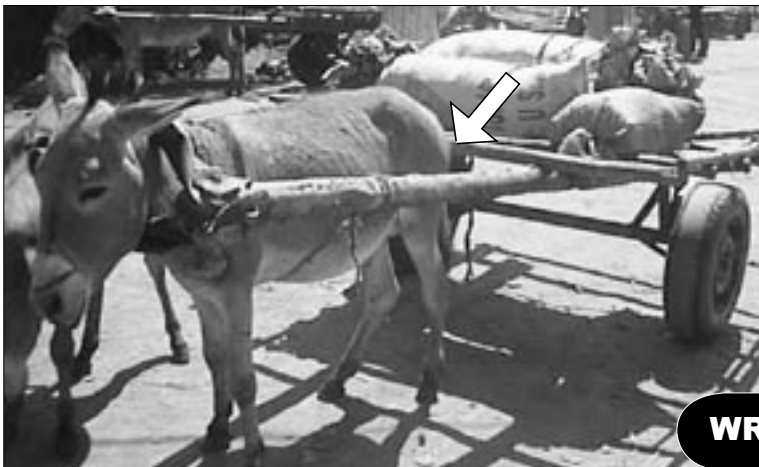
**RIGHT**



**RIGHT**



**WRONG**



**WRONG**

#### ***(d) Hitching two animals to pull a single shaft cart***

Two animals hitched to a two-wheeled cart is not ideal, especially for donkeys, as it is difficult to support the vertical load over the two wheels on the cart without some being transferred onto the necks of the animals, even when the load is balanced carefully over the two wheels. Four-wheeled carts are better as the vertical load on the cart is supported over the four wheels and not on the necks of the animals.

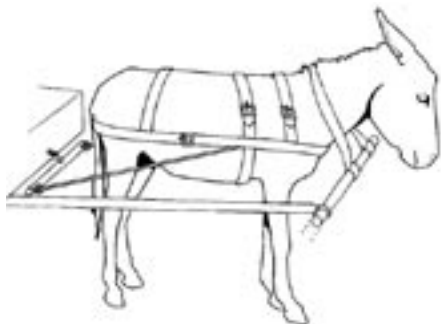


Fig. 32: Hitching two animals for carting

When two animals are used to pull a single shaft cart, one is positioned on either side of the central shaft. The front of each animal's harness is attached to the shaft by straps or straps and a cross pole to keep the animals pulling straight and to help in braking (Fig. 32). Each animal has a breeching strap connected to the harness near the girth. When going down hill or stopping, the animals lean back into their breeching straps and the straps or pole connecting the front

of each breastband or collar harness to the front of the single shaft tighten and stop the cart running any further forwards (Fig. 33). In order for the breeching to operate as above when the traces are tight there should be about a hand's width between the breeching strap and the rump.

With a collar harness on horses or mules, the front cross pole or straps to the single shaft also support some of the vertical load when a two-wheeled cart is used (Fig. 33), but can put undue pressure on the neck. With donkey carts a wide strap is used attached to the single shaft which goes around the neck of each animal.

The vertical load on the animals when a two-wheeled cart is used must be minimised by balancing the load on the cart over the wheels not on to the shaft or by fitting two extra shafts (Fig. 34). This is particularly important when using donkeys, which have weak, narrow necks. A poorly balanced single shafted cart puts too much load on the animals, leading to fatigue and injury to neck and back (Fig. 35).



Fig. 33: Team of two horses pulling a single shaft cart



Fig. 34 (above): Vertical load on a single shaft cart well balanced by fitting two extra shafts to minimise pressure on the neck of the donkeys

Fig. 35 (right): A single shaft cart can put too much pressure on the neck of a donkey

#### SUMMARY

**Always use swingletrees between the animals and the cart, never hitch the traces directly to the cart, use breeching straps to prevent the cart running into the animals, make sure the load is balanced on the cart to minimise the vertical load on the animals' necks especially with the pair of animals and single shaft cart.**





## Tethering hobbles



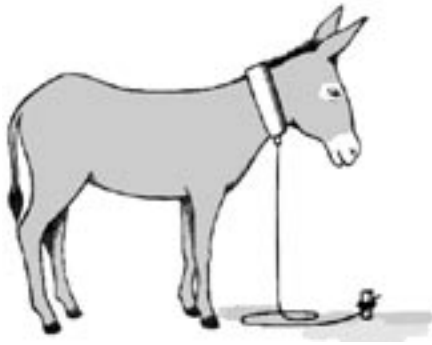
In grazing animals hobbles are used to restrict wandering of animals and should be used on the front legs only. The hobbles are made loose enough to allow for the blood to flow to the feet but thick enough not to cut the skin. Hobbles are fastened around each leg with a short rope between the two (Fig. 36). Do not hobble two animals together (Fig. 37).

In animals a hobble to a back leg is sometimes used in a stable to prevent animals that are tied close to each other from swinging round and kicking (Fig. 38).

Hobbles can be made from sacking tubes, cloth or leather. They must not be made of chain, nylon rope or synthetic material, which will cut the animal.



Fig. 36 (top): Leather hobble with short piece between  
Fig 37 (above): Two donkeys tied together  
Fig. 38 (right): Stable hobbles on hindlegs



A broad collar around an animal's neck can be used to secure it to a tethering rope and peg (Fig. 39) as an alternative to hobbling.

Fig. 39: Tether collar

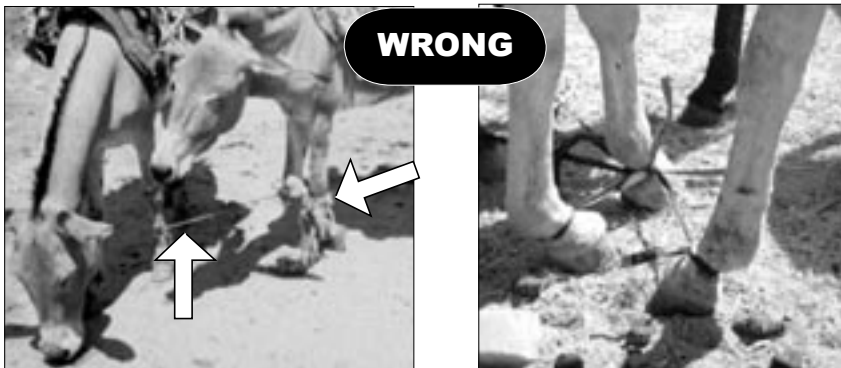
**RIGHT**



#### SUMMARY

**Only hobble the front legs together. Do not tie up a leg or hobble the back legs together or one back leg to a front leg. When tethering never leave the animal for long unsupervised, move it regularly to fresh grazing.**

**WRONG**





## Care of harness

After use, the harness, regardless of the material, should be cleaned to remove sweat, dust and dirt. This should be done with a stiff brush followed by a cloth and water. Soaking a harness in water can make it stiff and rough so it should be washed using a wet brush and/or a wet cloth, not soaked. Warm water gets rid of sweat and dirt more easily than cold water. The bit should be washed to keep it clean.

If a leather harness is used, which is relatively expensive, care should be taken to ensure that it lasts longer. The harness should therefore be kept soft and oiled regularly. The use of animal fat to soften the harness is one of the traditional methods used by horse, mule and donkey owners. Clean cooking oil can be used if animal fat is not available.

Harnesses should be cleaned and checked for worn-out parts regularly, preferably each day following use. When not on the animals, harnesses should be stored on a hook (away from rodents or dogs) in a dry, clean, safe place.



## Work related injuries

### Causes of harness injuries

Injuries can affect the animal's performance and result in a decrease in productivity. Whenever an animal works there is a potential for injury. Equipment and harnessing are largely responsible for injuries to working animals. Fig. 40 shows the main parts of the body where injuries can occur.

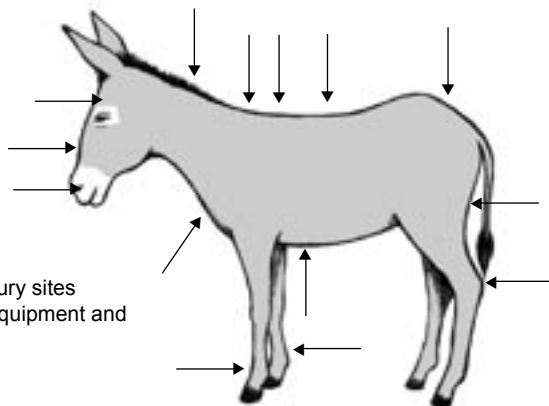


Fig. 40:  
Common injury sites  
caused by equipment and  
harnessing



## Common injuries



## Avoiding harness injuries

It is important to take precautions and prevent any injury that might be caused by improper fitting or use of harness and equipment.

The following practices should be carried out:

- After work each day check the animals for signs of rubbing and hair loss. If these are found, identify what is causing the rubbing before it develops into a sore. Remove the source of the problem and pad the harness in the rubbed area next time the animal is worked to allow the rubbed area to recover. Do this before a sore develops
- Check the harness for rough and sharp places, replace the piece or remove the cause of the problem before a sore develops on the animal
- Replace a poorly designed or old harness, always use the best harness you can
- Ensure the harness fits the animal properly and has no sharp corners
- Use swingletrees and eveners to hitch to the implements or cart
- Use breeching straps on animals pulling a cart
- Ensure the cart or implement in use fits the animal and is as light as possible
- The equipment and especially cart wheels should be kept in a good state of repair
- No animal should be worked in excess of its capabilities
- The animals should be allowed to rest frequently in the shade and offered plenty of water before, during and after work to prevent heat stress and dehydration
- Animals in good condition are much less likely to get harness injuries than those in poor condition so feed working animals well
- Feed should be given after water



**RIGHT**

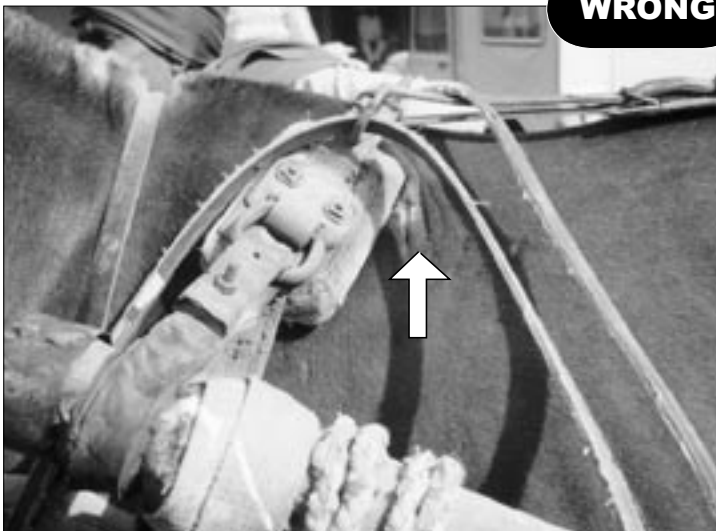


Table 1 shows the possible causes of injury by harness equipment and how one can prevent them.

**Table 1: Harness equipment: causes of injury and preventable measures**

<b>Problem area/ equipment</b>	<b>Cause of injury</b>	<b>How to prevent</b>
Hamess	Incorrect size and not properly fitted to animal Too narrow or thin Sharp edges Stitched joints/bolts Unsuitable material	Make back straps/saddle straps, traces and breeching straps adjustable Use wide bands or straps not ropes or narrow bands Sew with strong thread, rather than bolts or wire Use natural materials, leather where harness in contact with the animal, or webbing
Pack saddle	Poorly designed and fitted Made of unsuitable materials	Ensure weight rests on ribs, not backbone Measure on animal when making Use light materials Use good padding underneath
Halters Bridles and bits	Attached incorrectly Incorrect size used Unsuitable materials used	Avoid using bits and blinkers where possible Use wide soft straps not narrow ropes or wire, no sharp edges Make sure the halter or bridle is not tight around nose or throat Make adjustable
Hobbles	Unsuitable material used Not properly fitted	Use on front legs only Use wide straps, no sharp edges Should not constrict blood flow to the feet Attachments should have easy release Should be easy to adjust
Neck ropes or collars	Unsuitable material used Not properly fitted	Use wide straps, no sharp edges Should be loose around neck and not be able to slide to tighten Attachments should have easy release
Tillage implements	Too heavy for the animal Incorrectly set for depth or width of operation	Must be suitable for job and soils Add more animals in pairs if necessary

<b>Problem area/ equipment</b>	<b>Cause of injury</b>	<b>How to prevent</b>
Carts	Too heavy for the animal No brakes (for carts) Poorly designed and hitched No breeching straps on harness Shafts too short	Loads should be well balanced Wheels should be the same size Wheel bearings in good condition/ wheels turn easily Breeching strap to prevent cart hitting animal Saddle to enable animal to take weight of shafts on the back not neck Hitching points in right position Allow space for singletrees and eveners
All injuries on body	Poor body condition	Give water before feeding, feed well Avoid heat stress Do not overload

### **Treatment of harness injuries**

If animals do get sores and injuries then a number of simple treatments can be carried out by the owners.

If the animal has a wound then it should first be cleaned with plenty of water to remove dirt and dust. The best way to do this is to run water from a hose pipe over the wound for five minutes. Use lots of water. Do not just dab on a small amount. Clean cold water can also be used to reduce swelling. This again is best done with a hosepipe or if it is a leg stand the leg in a bucket of cold water. Sugar solution or honey can then be smoothed on a clean wound to promote healing and keep maggots away.

If the hair has been rubbed to form a swelling, but the skin has not been broken, the area can be cleaned with alcohol and then vaseline can be rubbed in. Do not rub strong creams, alcohol, tar, ash or dung on open wounds this will delay healing and can increase the chances of infection.

The piece of harness that has caused the sore or injury should be repaired so it is smooth and cannot rub again and extra padding used until the sore or injury has healed. If a saddle sore has occurred then the padding should be replaced with thicker material, remembering to use natural fibres such as cotton or wool, not synthetic materials such as nylon or plastic.

Raised padding around a back wound can be used to take the pressure off the back if a saddle has to be used. Make this by rolling a piece of soft bandage or cloth into a roll and tie the ends together to make a donut shape. Place this on the back with the sore in the centre, making sure the ring is bigger than the sore, and tie it in place, before placing the saddle cloth and saddle on. These can also be used under girths, breastbands and back straps where sores have occurred.

Where possible the animal should always be rested until any wound or sore is healed.

Prevention is always much better than having to cure an injury or sore. A daily check of the animal and harness during and after the working day, to detect signs of rubbing and loss of hair on the animal and sharp parts on the harness, can help detect any harness injury problems that are beginning to occur, before they get serious.