WORKING WORLDWIDE

A GUIDE TO PACK SADDLES

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Lead for harness work

THE DONKEY SANCTUARY

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Introduction

One of our biggest success stories over the last few years has been the introduction of a simple, cheap and easy to make pack saddle into various regions of Ethiopia. It's more of a back protector than a pack saddle, but it can be used either on its own or under a rigid frame.

Since we introduced this pattern nearly four years ago it has proved very popular with the local donkey owners, many of whom have now been taught how to make it for themselves. It has been mentioned in several publications, and as a result we have received many requests from people all over the world for detailed instructions on how to make it for their own donkeys. This demand has led to the creation of this booklet, which I hope will provide that information.

History

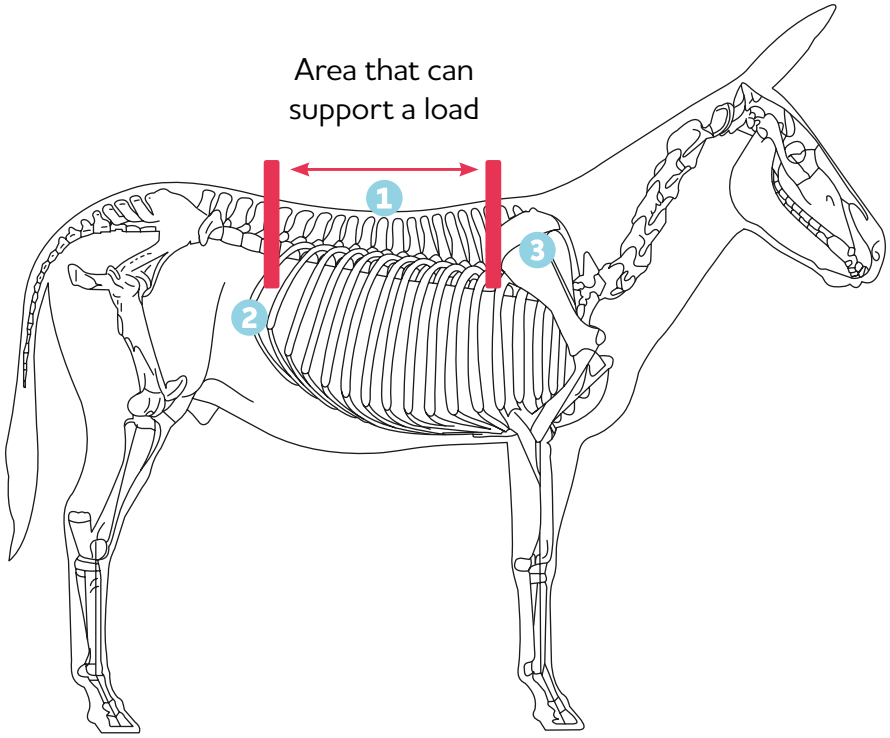
We have been making a pack saddle in Debra Zeit, Ethiopia for many years, but four years ago we decided to simplify it. The new pattern is actually based upon the frame of the complex saddle used in Egypt with one major addition. The Egyptian model is a nice saddle, but has no gullet space. This is the gap that sits over the donkey's spine and should prevent any part of the load rubbing on this sensitive area. Failure to provide this can lead to the horrendous wounds that are the bane of working equines all over the world.

We looked at several materials and decided on jute/sisal sacks stuffed with straw or hay, depending on what was available. The main considerations were that it had to help the donkeys, and that the materials, tools and expertise required to make it were realistically available to the actual donkey owners who we wanted to adopt it. The basic model is now being retailed at about £1.30 by some of the market groups that we have trained since initial trials proved successful, which includes all the materials and their profit.

After an initial period of receiving support from us, they are now totally independent; without that important separation, no solution to any problem can ever become sustainable. The vets working in areas where we have introduced the saddles have reported a significant drop in back sores on their donkeys over the last few years.

The saddle was adapted in many ways until we found mutually acceptable patterns that suit each area's particular needs, climate or terrain. The only part that has to remain consistent is the gullet space, and the bars that lie each side of the donkey's spine and distribute the weight of the cargo evenly over as wide a space as possible. Also, any material that comes in contact with the donkey must be natural, since synthetic materials are hot, poorly ventilated and will often cause a wound no matter how soft or smooth they may appear.

Saddle fitting



Whatever the equine and saddle type, it should rest on the area of muscle (longissimus dorsi) that lies along the animal's back either side of the spine, and should cover only the area supported by the animal's rib cage.

Equines have a floating shoulder blade that moves backwards and forwards during movement. Horses should have a minimum of a two finger-width space between the shoulder blade and the saddle, whereas donkeys need a little more.

While this should be taken into account, our saddle is fairly giving and since it's principally there to protect the donkey from the cargo sometimes we can go closer to the shoulder blades.

1. The saddle should be wide enough to allow room for the spine - too narrow and it will pinch, causing bruising or even damage to the spinous processes; too wide and it will press directly onto the spine.

2. The saddle should not go further than the 18th rib (the last one) or it will press on the soft tissues underneath.

3. The saddle should be clear of the donkey's shoulder blade so he can rotate it freely to bring his front legs forward.

Width fitting

This is essential in any type of saddle with a rigid frame, but as our pack saddle is non-rigid it will conform to the donkey's shape regardless.

Making the pack saddle

Materials needed:

- Sisal sack
- Thread
- Straw or hay (large full sack)

Stuffing rod

Tools needed:

- Tape measure
- Marker pen
- Knife or scissors
- Large needle (we use 5-inch mattress needles, but any large needle will do)
- Stuffing rod about 1 m long (broomstick with a flattened 'V' shape carved in one end, see picture)

Time taken: allow at least half a day for the first attempt. Our best saddle makers now produce about five a day but having made hundreds they've had plenty of practice.

Preparing the sack

The sacks are stuffed through what is now the long seam running from the top to the bottom, so start by closing up the open end. Fold over the two sides of the end a little to form a hem and, starting at either end, whip stitch across to the other side.

Whip stitch

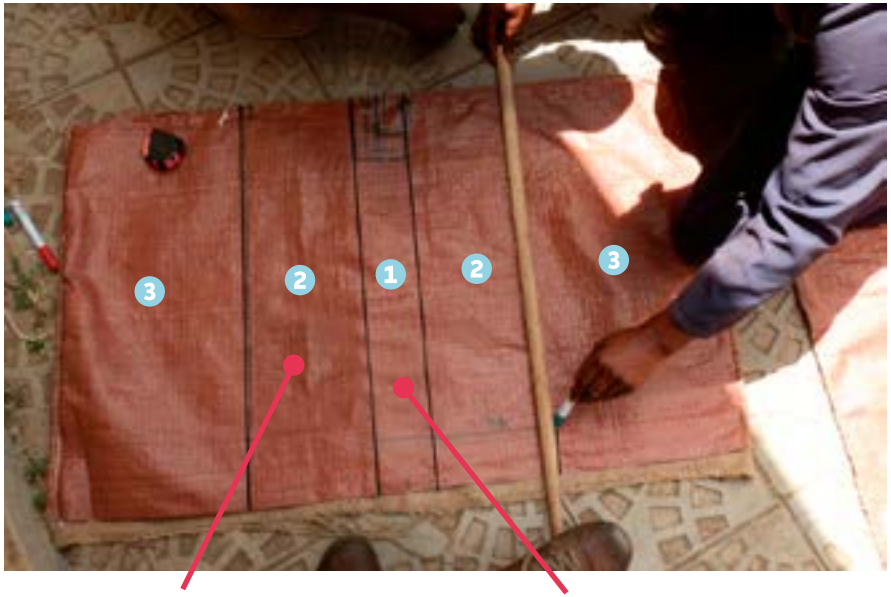
Pictured is a slightly different model using a nylon sack. The technique is the same and we'll cover that model as an alternative later.

Once the open end has been sealed, open up the long side seam. If you want to be really efficient, save the removed string for use later.

The open-sided sack ready to mark

Marking out

The sack is divided into segments to create the gullet space (1), the two side bars (2) and the panels (3) as shown in the picture below. Before you do this find your centre mark by folding the sack in two and marking the seam on both sides. Sacks are not particularly exact in their measurements, so don't try using the tape measure for this, just do it by eye.



Bars are 200 mm measured down from the outer edge of the gullet space (1) on each side as in the photograph.

Gullet space is 80 mm wide in total - 40 mm on each side of the centre mark.

The gullet (1) is marked at 40 mm each side of the centre mark, so it measures 80 mm wide in total. The bars (2) are measured at 200 mm from the gullet line down on each side. The panels (3) are whatever is left, but should be roughly equal.

Stitching

Now stitch along each of the marked lines. A simple running stitch is fine; this will give five separate pockets ready for stuffing. The line between the stitching in this photo is the centre line; you can just make a small mark each side.

Running stitch

Pockets

Stuffing

This is the most crucial part of the job. Start by stuffing the bars (2). Don't think that by making them soft you will make the saddle more comfortable for the donkey. You want to get as much straw or hay in there as you can, beating it down regularly to shape it and fit more in. If you don't then the straw will compress with use, your bars will become thin and the cargo will start to catch on the donkey's back.

I like to use a fairly long straw for this job. Take a small bundle around 1 cm thick in your left hand, twist and fold it in half and place it between the 'V' in your stuffing rod.

Holding down one end of the straw or hay in your left hand, twist and bend it over the 'V'.

Holding both ends of the hay or straw and moving your right hand back to the haft, you are now ready to place the straw into the sack.

You can now use the rod to place the stems right into the bottom corner of your first bar. Build on this, placing each bundle carefully. When it's looking fairly full, beat it down hard, then continue laying more straw on top, working your way back up the bar. You don't want a round sausage shape; aim for a square-like cross section. Before you start it is worth sprinkling a little water over your pile of straw to dampen it a little. This will allow you to bend and twist your bundle without it snapping in two.

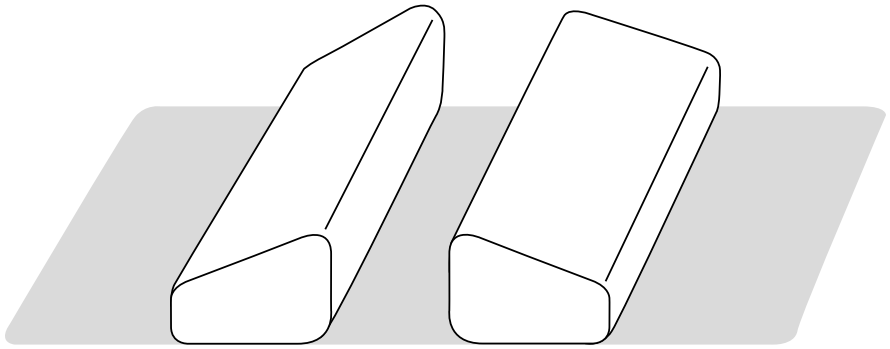


Diagram showing the 'ideal shape'

It looks as if the wedge should be the other way around, with the thinner edge against the gullet space, but this shape will cause the material over the gullet to tighten up and lift away from the donkey's back once the pack saddle is turned over and in place.

As you work your way back up the bars, take the time to make sure that you have no bumps or hollows as you can't sort these out later – it has to be done as you go. Every bump or hollow will cause a pressure point, which may lead to sores on your donkey. We need to provide a platform that will spread the weight of the cargo evenly over as wide an area as possible.

These pictures show one of our harness team making his first pack saddle. He is concentrating on filling the space a little too much, and is getting a sausage shape. He did manage to correct this by beating and working in more layers of straw above the original, but it's better to try and get the shape right as you go. This takes practice and time.

Stuff both of the bars, making sure they're equally full and even.

Stuffing the panels (3)

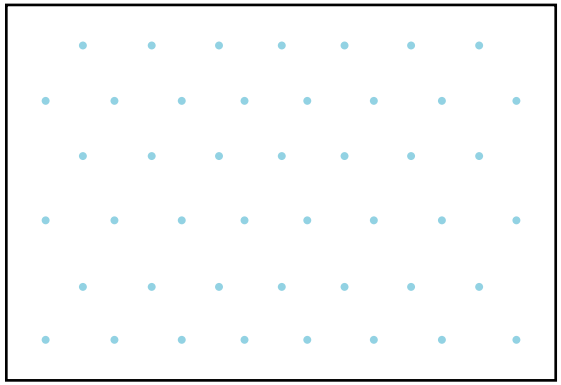
The density of stuffing in the two side panels should be about one third to a half of the density of the bars (2). Once these are finished they will be quite a bit thinner, and depending on use they're sometimes left with no stuffing at all.

You should now have something that looks like the picture below. Starting at either end, you can now seal the ends off with a whip stitch as used before. As you close up the ends, make sure the bars are topped up with straw as some will invariably have dropped out since you stuffed them.

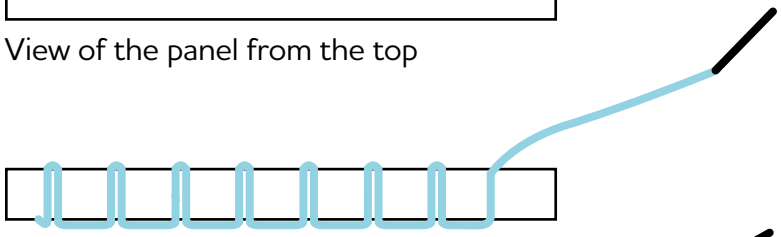
Quilting

The panels (3) need to be quilted. Because they are quite large and the stuffing is not that dense, it has to be physically held in place or it will all work its way down to the bottom and become totally useless. It's best to mark out your quilting stitches with a straight edge and a marking pen first. Make sure that the stuffing is evenly spread and goes right into the corners. As you are stitching, keep beating the stuffing down and tightening up the stitches to produce a firm, even panel.

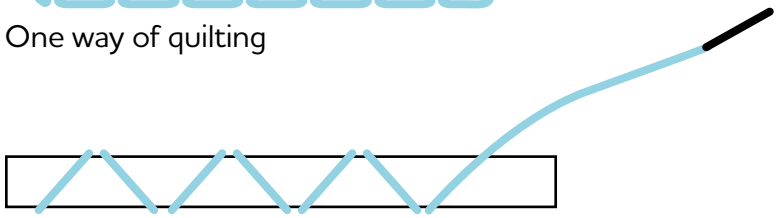
Quilting diagram



View of the panel from the top



One way of quilting

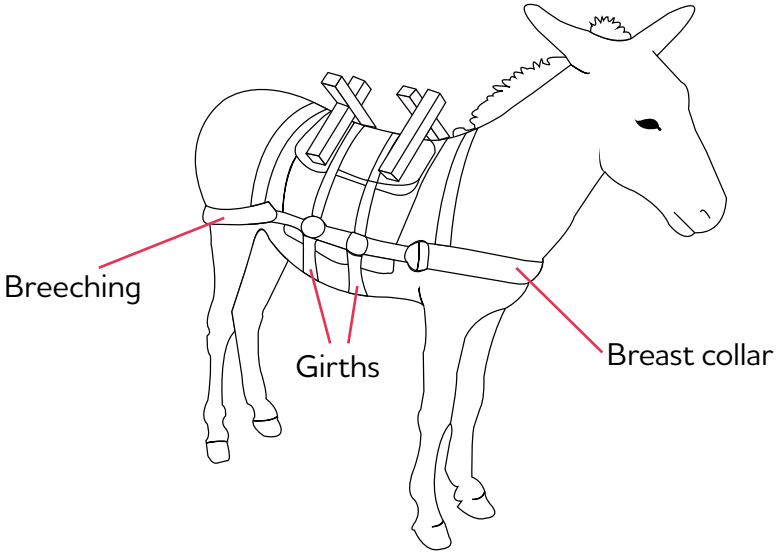


Another option for quilting

Hopefully your pack saddle will now look something like the one below.

Girths, breast collars and breeching straps

For flat land you'll probably only need a girth. In the previous picture there is a hand-woven girth made from sisal string attached to the saddle. But if you are going up and down hills then you might want to change that for a breast collar and breeching. If necessary you may want to have all three. Girths can be done up fairly tightly, but the breast collar/breeching combination should have a little give (about 10 cm) or one hand's width of free play. If they are too tight then you'll find that they restrict your donkey's leg movement and may wear away bald patches, or even cause sores. Any of these straps should be about 6 cm in width and made of natural fibre. You can use nylon web but it must be lined with a material such as denim, cotton or wool where it is in contact with your donkey.



The diagram shows a sawbuck saddle with girth, breast collar and breeching attachments. These would be much the same if you wanted to fit them on your packsaddle.

Alternative designs

In many of the pictures used here you'll have seen that nylon sacks are being used. This is an adaptation of the original all-sisal sack design. Because many of the people in Ethiopia are using these pack saddles for carrying water, they found that the sisal sack allowed the water to pass straight through, soaking the hay or straw inside, making it heavy and causing it to rot very quickly. We worked on that and came up with an adaptation that involves completely separating the two sides of the sack, and replacing the top side with a similar piece taken from a nylon sack. This had two knock-on effects. The overall cost of the materials decreased, since nylon sacks are generally cheaper than sisal, and we found that it also wears better in some cases.

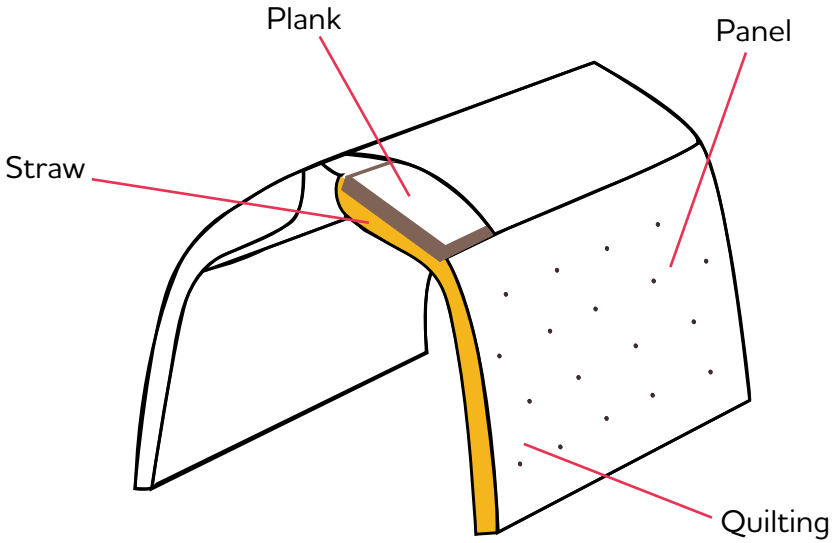
If using this under a wooden frame then you'd probably need to make the bars a little finer, or the saddle frame will end up being very high and unstable. With a good framed saddle you wouldn't really be using a pack saddle in this form at all; you'd be using a blanket, numnah or saddle cloth – we only use this because most of the wooden-framed pack saddles in Ethiopia are not very donkey friendly and there needs to be substantial protection.

If no jute or sisal sacks are available then you can make it with the nylon sacks, but you should line it underneath (the side in contact with the donkey) with some natural material such as a woollen blanket or heavy-duty cotton.

Ethiopian rigid-frame pack saddle

Dealing with wounds

If your donkey develops a wound, it's likely to be on the dorsal process, the spine or under the bars of the pack saddle. If the saddle is well stuffed and maintained then the cargo should not be touching the donkey's spine. If it is, then you need to re-stuff or look at the way your cargo is sitting. Obviously if something in the cargo is putting enough downward pressure in this area then it is going to overcome the protection offered by the straw. In this case you either need to change the way your actual cargo is packed, or go to a rigid-framed pack saddle such as a sawbuck. One alternative that hasn't yet been tested is to put two planks about 1 cm thick, cut to the same size as the bars, inside the sack prior to stuffing. This would give you a solid base each side of the spine to put the load onto.



If the wound is under the bars then do not use a doughnut. These relieve the pressure to the actual wound site, but they also increase pressure all around it, causing more wounds over the surrounding area. It's best to beat a depression into the stuffing on the underside of the saddle, put a couple of stitches through all the material and pull them up tight. This will keep the saddle away from the wound, allowing it to heal without putting extra pressure onto the surrounding area.

It goes without saying that the best thing to do if your donkey is wounded is to treat the area and take it off work until it is healed. The reality is that this saddle is used in areas where the donkey is an integral part of a hand-to-mouth existence. If the donkey doesn't work today then there is no water or food tomorrow. Therefore wounds have to heal while the donkey keeps going.

Durability

In Ethiopia these pack saddles last up to six months, but they have a pretty tough life and the donkey owners don't tend to look after them very well. In Mexico recently I saw a similar model being used, which the owner claimed he'd had for over 20 years. He did take care of it, and laid a piece of canvas over the top before loading it. He carried firewood from the forest to his home, a distance of about 12 km, three times a week, and also to the market where he sold it. The key points to longevity are keeping it dry and well maintained.

Above: A Mexican donkey owner with his jute sack pack saddle. Note the piece of canvas over the top, protecting it from both rain and physical damage from the firewood he carries. This pack saddle was used on a different donkey before this one.

This is typical of the average load carried by this donkey up to three times a week for distances of around 12 km. There were no signs of stress or wounds. He was quiet and very friendly with his owner. The donkey also turned out to be about 20 years old.

The ropes used to tie the cargo in place often cause wounds. Note that the owner always uses the girth as protection for his donkey's belly – as a result, the donkey had no signs of a wound or even tenderness in this area, despite the ropes being tight.

Sawbuck saddles

I've mentioned these a few times. They've been around for a long time, having been used by both the British and the US armies, and are still used by the Indian army in one form or another. They are used with either a blanket, numnah or saddle cloth underneath them, or an Aperejo, which is a Mexican term for a back protector traditionally used in Central and North America.

Typical sawbuck saddle frame

Finally

I hope this book has given you all the information you need. If you have any questions or feedback (good or bad, it's all useful) then please feel free to contact me at chrisgarrett@hotmail.fr

Chris is an English master saddler and harness maker who has been working overseas as a trainer and consultant for the last ten years. He uses locally available materials and techniques wherever possible and hasn't used any 'imported goods' in his work for the last four years. He has worked in India, Africa and Central America.

Recommended reading for more information on all aspects of packing equines:

- Manual of Pack Transportation by H.W. Daly
  ISBN 1-59048-045-7
- Horse Packing by Charles Johnson Post
  ISBN-10: 1-60239-166-1
  also ISBN-13: 978-1-60239-166-6

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