Exclusion Plot Design and Costing - April 2005, updated 2014

All fences are 10m x 10m square and have a 250mm outward roll over of net at their base to stop animals moving through. Prices are approx, and based on info from Midland Rural & Irrigation, Castlemaine. *NB. Prices are based on a per roll or bulk price.*

Option 1: Full net and top wire 900mm high

40m x 1050mm rabbit netting - $118
80m plain wire in fence - $9
10m plain wire in stay - $1
10 steel star posts (8 full, 2 cut in half) - $50
80 netting staples - $1.20
Total: $180

Option 2: Full net, no top wire, 800mm high

40m x 1050mm rabbit netting - $118
40m plain wire in fence - $4.5
10m plain wire in stay - $1
10 steel star posts (8 full, 2 cut in half) - $50
80 netting staples - $1.20
Total: $175

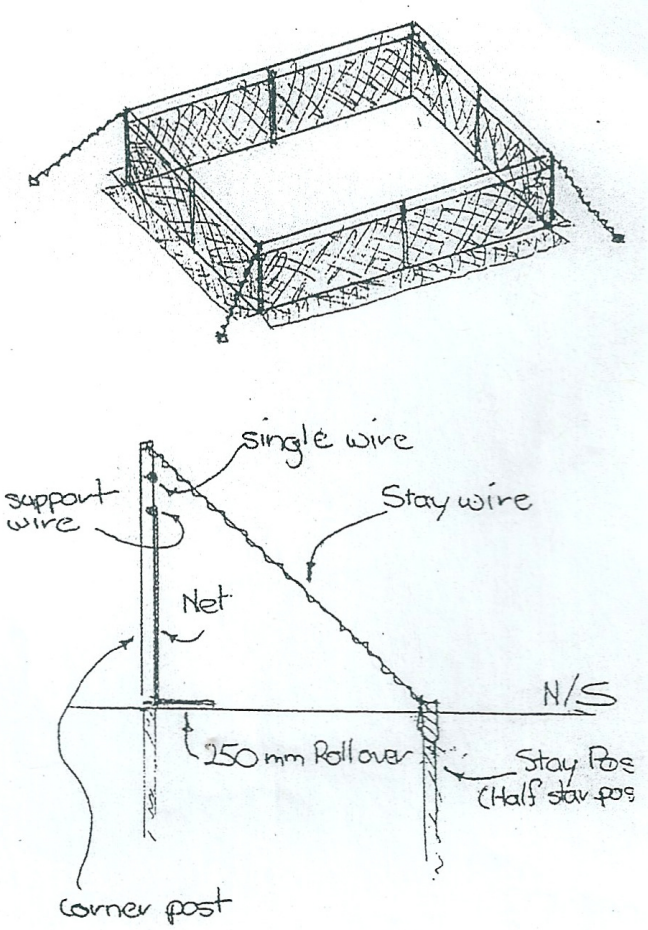
Option 3: Shorter net and top wire, 750mm high

40m x 900mm rabbit netting - $102
80m plain wire in fence - $9
10m plain wire in stay - $1
10 steel star posts (8 full, 2 cut in half) - $50
80 netting staples - $1.20
Total: $164

Option 4: Shorter net, no top wire, 650mm high

40m x 900mm rabbit netting - $102
80m plain wire in fence - $9
10m plain wire in stay - $1
10 steel star posts (8 full, 2 cut in half) - $50
80 netting staples - $1.20
Total: $160

Sketch



Exclusion fencing

For the purpose of this exercise I'll use the methods I use to construct a 10m x 10m exclusion quadrat. It usually takes me about one to one and a half hours to put one up. Any similar quadrats up to around 30 metres in diameter could use this type of simple corner assembly. For example steel star posts combined with a simple short steel post stay and wire. (See accompanying sheet)

Gear

You will need

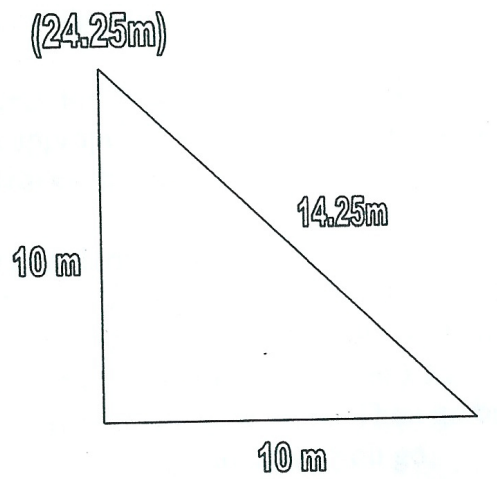
- One (good quality) helper if available, until you become proficient
- steel post driver
- axe/sledge hammer
- 30 or 50m tape measure
- 8 x 1.65m steel posts
- 2 x 1.65m steel posts cut in half with angle grinder(4 short posts)
- plain wire
- netting
- tie wire
- ring fastener & packet of rings
- wire spinner
- good pair of pliers
- tyre lever
- A six by four trailer

You can carry several exclusion quadrats with your trailer. With the addition of a couple of 2 inch U bolts fitted to either side of the trailer "gunnels" about 2 feet from the back, you can run the netting out unhindered (push a crow bar through one of the U bolts and then through the centre of the netting roll and then through the other U bolt, this will suspend the netting, working like an axe).

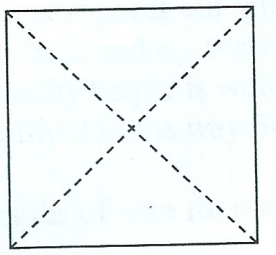
Choosing your site

- I always try to align the quadrat north south even if you haven't planned any particular trial/study or monitoring for the future.
- A little bit of consciousness about north and south alignment at this stage, will pay off in the long run.
- I then throw around a few steel posts for the corners and drive one in on the south west corner, make sure the holes in the post are on the outside of your quadrat. I work out where north is and measure 10 m in this direction and drive the next post in.
- Check the depth of each post so they are all the same height (allow for three wires, and the height of the netting less about 20cm for the folded out part of the netting skirt)

The diagonal distance across a 10m quadrat is about 14.25m so if you add 10m to this (24.25m) and fasten the tape at this distance to the post you just put in, (most windup tapes allow the handle to fold over and lock the spool, you can cunningly attach the tape to the post this way)



- Walk back out along the tape and to the east till you find 14.25m. Carefully take up the tapes tension till you have the diagonal and right angle you need to place the next corner (easy isn't it).
- Lucky last point is found by walking along the same tape to the south and find the 10m mark, again pulling up the tape and putting your post in position.
- You will need to put in some intermediate posts. So plonk a post lightly in about half way between each corner. Go back to the corners to line them up accurately then drive them in to the correct depth.
- If the quadrat looks a bit wonky check the diagonals to see if they are even.



Trouble shooting

Whoops my quadrat isn't square, "I've checked the diagonals and they aren't the same".

- Check measurements distances
- All measurements should be horizontal, slope distances are short
- All measurements should be straight, bendy measurements are short.
- If any corner is higher or lower than the others or if the quadrat is on a slope there always seems to be some amount of "unavoidable misalignment". Don't worry, 10 cm's may matter in your pants (if you're a bloke) but is probably irrelevant in your 10m quadrat.

Setting up

Running the wires

- You will probably need 4 strains of plain wire, one supporting the top of the net and the other two above this and one in the middle or lower section of the netting (about 30cm of the ground)

- Have your wire and wire spinner setup on the ground near a fence corner grab the wire end with a pair of pliers and pull around to the second corner thread this through the top hole and continue around to the next two corners till you return to the start take up a little slack and bend the wire through the top hole of the first corner, cut the wire at the spinner and also bend it through the same hole.
- Continue this process for the other three wires being careful to put them through their own appropriate successive holes and not allowing the wires to become tangled with each other.

Tricky bit

- Drag your netting out along one side of your quadrat. (I often pace the distance of 40m, mark it then pull the net out to this spot) Carefully I drag the net around to all the corners (hooking the top of the net on the posts helps)
- When back at the start wrap and lightly fasten 20cm of net around the post allowing for the 20cm skirt on the bottom. Then go back around and take up the big bits of slack, rehanging the net as you go.
- Cut the net. Make sure you allow enough net to extend 30cm past the corner and temporarily attach this end to the corner.

Stays

- On a diagonal line, out from each corner place one of the short posts at about 1 pace or 1m.
- Angle the top the small post out from the corner and leave about 20cm sticking out (if you aim through the corner you are at and through to the diagonal corner of the opposite side of your quadrat you will always be right for line)
- Next you need to make some stay wires, go back to your wire spinner grab the wire end and pace 6 good paces out into a clear direction. Poke the wire into the ground, go back and cut the wire at the spinner and let it go. Make sure your good quality helper is well out of the way, he or she may not be of such good quality if in the way. Repeat this step three more times.
- Then take your four lengths of wire for a walk around the quadrat one to each corner.
- As you go around lift the netting off the corner posts.
- Next thread the wire through the top hole of the corner post and then through the short stay post, do this twice so that there are two wires running through both posts making two loops of wire.
- Straighten the posts so they are vertical, kink the wire so that it sits neatly in the holes and join the two ends together with a double loop.
- Now for the **dangerous** bit, with an old tyre lever or similar (bar with a hook) place between the strands and begin twisting. This tightens and neatens the whole assembly. **Be very careful not let go of the lever, both winding up and letting it go.** It can seriously hurt you or your quality helper. Only wind till you have taken up the slack and got an even twist.
- Once you have attached all four stay wires its time to fit the plain wires
- Start by tying all four wires to the first corner
- At the second corner carefully pull the top wire so that it is tight with a slight belly. Neatly place a kink in the wire using the hole in the post, and bend it back slightly on itself so that the wire stays there when you let it go. Do the same for the other three wires. Continue this process till you

finish all the ends off at the first corner. (What you are after is even tension with the top wire being a fraction slacker than the bottom wire).

- Grab the tie wire and tie all the plain wires to the in between posts
- Fasten the netting properly to the first corner coming back on itself and twitching together. Pull up and hang the net on the intermediate and second corner, go back and adjust the net so that the skirt bends out correctly and that the net is straight along the line.
- With your ring plier's walk along from the first corner clipping the net to third wire lifting the net off the posts as you go.
- Cut a 20cm length of tie wire and kink it through hole of which the top net supporting wire runs through.
- Pull the netting with a pair of pliers and when tight twitch the tie wire through the netting, this will hold the netting in place.
- Run your eye down the netting to the ground at the corner and find the apex of the corner (where the corner bends) cut the netting at the bottom with your pliers a little less than your skirt perhaps 20cm. this will allow the netting to bend around the corner without kinking.
- You are now set to do the next line, continue through the corners right through to the end and tidy up the loose netting at the end by twitching it around its self.
- Again with your ring pliers walk along and secure any wobbly or loose bits.
- To finish off all you have to do is take the axe for a walk and lightly tap the short stay posts and your floppy top exclusion fence changes into the taught tight professional model. Magic