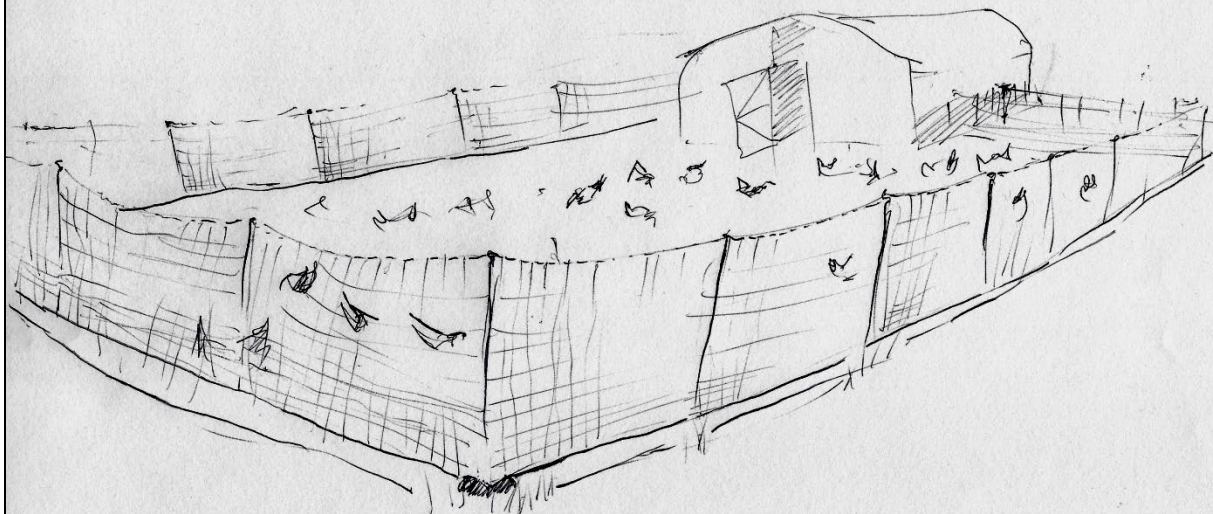


HenPen Manual
Three Brothers Farm



2022 edition

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Thank you.

Michael and Courtney Gutschenritter

HenPen Manual

Introduction

This manual explains in detail how to construct and use the HenPen. It is designed to work with 20' x 40' Prairie Schooners. However, it is easily adaptable to other sizes and styles of skid-style poultry coops. Whether you use another kit or a homemade coop, this can be modified to work on your farm with your set-up. The HenPen can also be smaller or larger than what's described in this manual. Any modifications can be made to suit your circumstance. At Three Brothers Farm, we've made various modifications over the past few years. A little creativity will save you hours of needless labor every week.

Materials

Almost everything listed here can be found at a hardware store. If you already have similar materials available on hand, by all means use them. However, do not use anything other than the designated drainage pipe and the 90-degree rubber elbows. These elements are essential to long-term success with the HenPen. If you already have different lengths of poultry fencing, it can be modified to work. Ideally, use what's listed below, but we also encourage the reuse of materials on hand.

QTY	Material	Approx Total Cost
20	4-in x 10-ft Triple Wall HDPE Drainage Pipe	\$132
6	(8ft) 3"x4" treated landscape timbers – Be sure that these have two rounded sides, as shown in the pictures in this manual	\$30
1	Box of 2-1/4 inch construction screws	\$30
1	Box of 3/16" fender washers	\$5
4	4"x4" 90-degree rubber DWV elbows	\$60
4	3/4-in 2-hole metal conduit strap	\$1
	50 feet of vinyl rope	\$10
1	Roll of 1/8-in x 50-ft paracord	\$5
3	1/4" x 3-3/4" Eye Screws	\$2
5	10-ft 6-in top rail pipe	\$75
6	3/8" x 2" lag screws	\$2
8	3/8" x 5" lag screws	\$5
4	3/8" x 3" lag screws	\$3
2	3/8" x 2" bolts with washers and lock nuts	\$1
2	2"x 6"x 10' treated lumber	\$30
2	100-ft Poultry Netting Fence with double spike	\$346
1	Box of 1-1/2" fence staples	\$5
	200-ft of rubber conveyor belt (optional)	\$100



Landscape Timbers
Triple Wall Drainage Pipes
Top Rail Pipe



Fender Washers
Paracord
Eye Screws
Lag Screws
Bolts w/ Nuts
Conduit Straps
Fence Staples
Vinyl Rope
Construction Screws



Four Rubber Elbows



Lumber
Rigid Posts
100-ft Fences

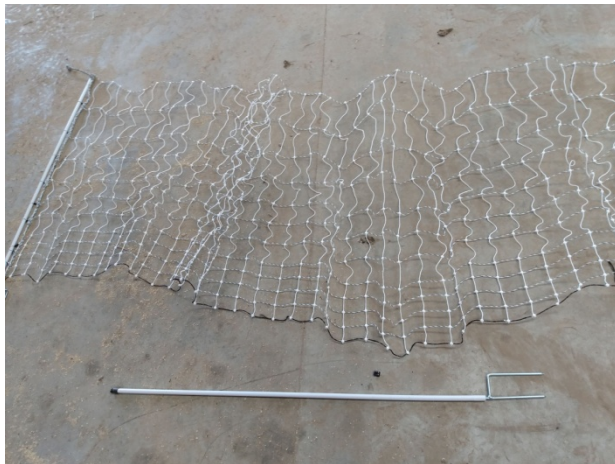
Tools Required

- Pliers
- Chop Saw
- Tape Measure
- Hack Saw
- Drill
- Impact Driver
- Hammer/ Dead Blow Hammer
- Permanent Marker
- Metal cutting saw (or angle grinder)
- Bench Vice
- 3/8" drill bit
- 21/64" drill bit
- 3-3/4" hole saw
- 5/16" hex bit
- 9/16" wrench

Preparations Before Assembly - Fencing/ Timbers/ Bracing

When considering where to build the HenPen, be sure you choose a spot with pasture under 6 inches in order to make construction less cumbersome. It will also be easier to monitor necessary corrections when you first move your new HenPen.

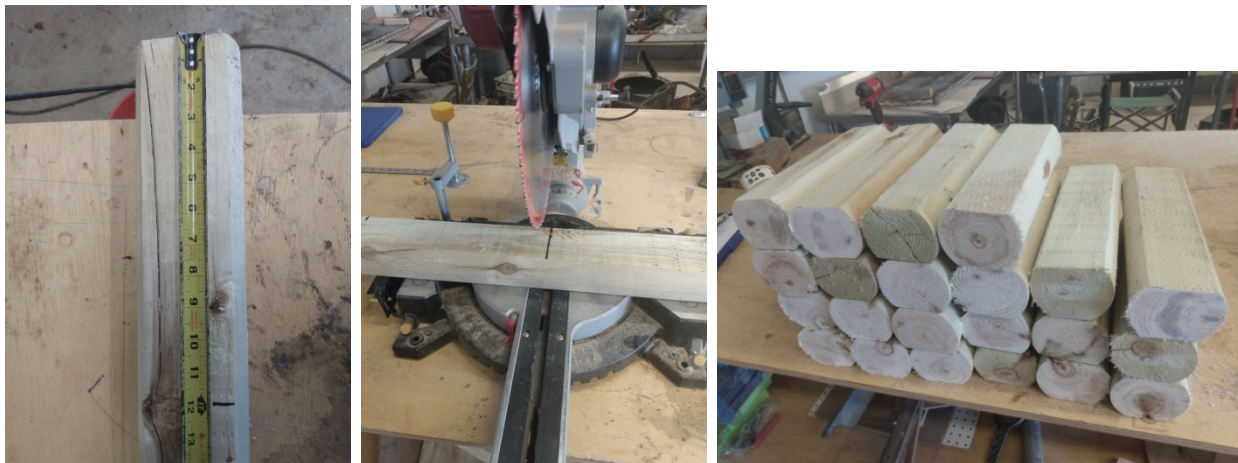
First, unroll your 100' electric fences on the ground. Leave the two terminal posts (the ones at each end of the netting) attached to the netting, but take the rest of the posts out. To do this, take the top string of netting out of the slot on the top of the posts. Then, find the small black clip on the metal spike at the bottom of the post. Slide the spike out of the clip. You may want pliers to hold the clip. Then take the clip off of the netting and keep it in a place you won't lose it. You will need that clip later. Now weave the post out of the netting. Do this to all of the posts until you only have the two end posts connected to the netting. Do this to both sets of fencing. Put this fencing off to the side, folded tidily, and making sure not to tangle it.



Measure and mark each spike at 3.5" from the horizontal step of the spikes. While wearing safety glasses, use a metal chop saw or an angle grinder to cut the spikes at that mark. Remember to do this to the terminal posts that are still connected to the netting, too.



Next, take three of the 3"x4" landscape timbers to your saw. Measure and mark every 12" on the wood. Cut at each 12" mark. You need a total of 22 chunks of wood. Leave the other three timbers uncut.



Flatten both ends of two top rail pipes, making sure to flatten them on the same plane (not 90-degrees to each other). Use a press or bench vice. If you don't have the means to do this, it's okay to leave it rounded, but it's best to flatten them.



Use a 3/8" drill bit to drill a hole through the center of the flattened ends of the pipes. The lag screw should be able to fit through the hole.



Take two of the remaining top rails. Flatten the non-swaged end of both. Leave the swaged end untouched. Take the last top rail and cut two sections of 4 feet. Each 4-foot section should be non-swaged on both ends. Flatten one end of the 4-foot section and drill a 3/8" hole in it. Slide the 4-foot sections over the swaged ends of the other top rails, making two 14-foot pipes with flattened ends. Secure the union with two self tapping tek screws, again ensuring that the flattened ends are on the same plane.



Preparing the Mounts

The wooden mounts are designed to secure to the steel hip boards and base boards on the Prairie Schooner. If you use wooden hip boards and base boards, there will be very little to change. Because the Prairie Schooners have roll-up sides, the mounts are designed to accommodate them. Follow along with the accompanying pictures for additional clarity.

For this step, you'll need the 3-3/4" hole saw, the 2x6 treated lumber, 12" length of 3" wide wood, 2 full landscape timbers, tape measure, chop (or circular) saw, 2-1/4" screws, impact driver, hammer.

For one mount, cut the treated 2x6 lumber into the following dimensions:

2 @ 16"

2 @ 5.25"

Measure the length from the bottom of the baseboard to just under the C-channel on the hipboard. Measure both sides as they could be different. Cut that length of 2x6. **This is your vertical piece and it will be referred to as the vertical piece from here on.**



Use a 3-3/4" hole saw to cut a hole in the center of each of the 16" pieces.



Cut another 3-3/4" hole in the vertical piece. Put the center of the hole at exactly 2.75" from the end of the lumber.



With all the lumber cut to length and the holes cut in place, you're ready to take the materials to the coop and assemble the mount.

The mount is designed to attach ten feet back from the front of the coop. This is at the third arch on the 20'x40' Schooner.

Slide one end of the landscape timber into both 16" pieces. Then slide it into the hole on the vertical piece. Ensure that the end of the timber is flush with the back of the vertical piece. It may take a little wrestling to get the timber through all the pieces of wood. Put a screw through each side of the vertical piece into the timber.



Put a screw through the back of the vertical piece, into the 16" piece. Continue to screw all of the pieces together as pictured. The 5.25" pieces go next to the vertical piece as supports against the baseboard. Be sure to screw them into the 16" piece before placing the whole unit against the base board.



It's now time to secure the mount to the Schooner. Having a second person or a large C-clamp is helpful to keep the mount lined up and plumb to the base board while you work from the inside of the coop. Take the 3" wide, 12" long piece of wood to the inside of the base board. Line it up with the back of the mount, and slide it against the base board. You may need to tap it in with a hammer to get it behind the upright pipe (Positioning is pictured below). Drill four 3/8" holes through the wood and the base board, into the mount. Drive the 3/8" x 5" lag screws into those holes. At the hip board, place another piece of wood on the inside behind the vertical piece. Drill two 3/8" holes and drive the 3/8" x 3" lag screws into those holes. Remember that you need to sink your lag screws into the top of the vertical piece and there's less material than the baseboard.

After the mount is secured to the coop, it's time to build the frame of the HenPen.



Assembling the Frame

A few notes before you start assembly:

-Whenever you screw through the pipe or elbows, use fender washers with the screws. Otherwise the screws will go straight through the pipe.

-Keep your screws off of the center of the top of the pipe by an inch or so. Doing this will give you more options for where to put your fence posts and bracing.

-The landscape timbers always need to be rounded side up. Your fence post steps will eventually go through the top of the pipe, and into the wood. This is most effective with the rounded side of the wood snug against the top of the pipe.

Start the frame assembly at one of the front mounts.

1- Cut the PVC end off of one drainage pipe with a hack saw, and then slide the pipe over the landscape timber that's attached to the mount. With four screws and four fender washers, screw the pipe to the landscape timber near the mount. Keep the screws an inch away from the top of the pipe.



2- You are now at your first corner. Slide a 12" chunk of timber into one end of the rubber elbow until it hits the inside of the corner. Don't force it into the corner. Set the elbow and wood next to the pipe so the end of the pipe lines up with the rim of the elbow, just behind the hose clamp, as pictured. Draw a line on the pipe where the timber ends.



3- With the timber already in the elbow, slide the timber into the pipe. The pipe will slide into the sleeve of the rubber elbow. The red line now indicates where the timber ends inside of the pipe. With fender washers, put two screws through the pipe and into the timber, roughly an inch from the red line. With a 5/16 hex bit, tighten the hose clamp to secure the elbow to the pipe. Put two screws with fender washers through the sleeve of the rubber elbow into the wood.



4- Repeat the previous step for the other end of the corner. Be sure to use the non-PVC end of the pipe for the connection to the elbow.

5- You now have your first corner done. To build the straight unions, start by marking a 12" timber at 6 inches. Place the 6-inch marking in line with the non-PVC end of the union. Mark on the pipe where the timber ends, as pictured. This will tell you where you can screw into once the wood is in the pipe.



6- Slide the timber into the marked pipe until the 6-inch mark is at the end of the pipe. Put a screw and fender washer through the pipe and into the timber near the pipe's mark. This will hold the timber in place as you slide the PVC end of the next pipe over the timber and the marked pipe. Being sure that your pipes are snug together, measure and mark 12" from the original mark. You now know where the wood is in the pipe. Put two more screws with fender washers through the pipe and timber on the other end of the timber, as pictured.



7- Repeat this process until you've connected seven pipes running straight. After seven straight pipes, add a corner as you did before. On the corners, always use non-PVC ends of the pipe to connect to the elbow. You will have to cut the PVC off of a couple ends to make this happen.

8- After building the back corner, start building the back of the HenPen using the same method, but stop after connecting two full pipes. After the two pipes, do not add a 12" timber. Instead, use a full length, 8-ft timber. Add it in the same way that you built the other straight unions, but mark the timber at 48 inches instead of 6 inches. This 8-ft timber will add rigidity to the frame during the pasture moves and keep the back from kinking. You may also find that you'd like to sink eye screws or other hardware into this area for various reasons in the future. The timber facilitates this.



9- Continue building the frame using previous steps until you reach the second mount on the other side of the coop.



Bracing

-Before adding any bracing, be sure that the front corners of the frame are as square as possible.

1- Take a full length of top rail (10' 6") with flattened ends to the back of the Schooner. Lay one end on a union of the HenPen frame and the other on the top of the base board of the Schooner. Put a lag screw through the top rail into the frame. On the other end of the top rail, drill a hole through the top of the baseboard where the top rail is going to attach. Connect the top rail to the base board with a bolt, washer and nut. Repeat this on the other side of the Schooner.



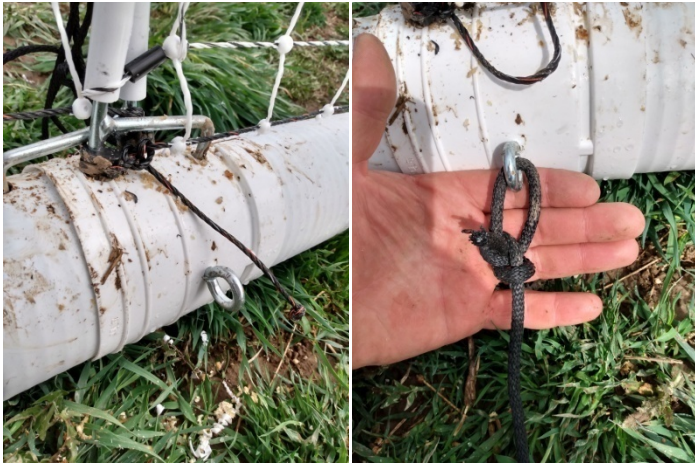
2- Take the 14-foot pipes to the back corners of the HenPen. Place one end of the pipe on the first union on the back and one end on the first union on the side. Attach the bracing to the unions with lag screws. You will be drilling into the wood that you placed inside the union. Repeat this on the other back corner.



3- At the front of the HenPen, install an eye hook into the wood that makes up the front corner. Tie the vinyl rope onto that eye screw. Tie the other end of the rope onto the front corner of the Schooner. This rope needs to be taut when the front pipe is perpendicular to the Schooner. It may take a couple readjustments to get it right, especially after the first couple paddock shifts. We use a bowline and a trucker's hitch knot because it's reliable and easily adjustable. Repeat this step on the other side.



4- This step is optional and we recommend only doing it after you turn the coop a few times. Depending on your pasture and how frequently the coop turns, you may choose not to use this step. If you install the rope and the back of the frame is always swerving and bent, we recommend uninstalling it. Install an eye screw into the middle of the back of the HenPen (on the inside of the HenPen). Tie the vinyl rope onto the eye screw and tie the other end onto the middle of the back of the Schooner (at the bottom of the door frame). Keep this rope taut. This will keep the back of the HenPen from bowing out, but depending on the radius of your turn, it could end up damaging the pipe. Just observe your HenPen while moving it the first few times to determine whether or not to attach a rope.



Attaching the Fence

The most important part of this step is to get the fence upright. While this step can be done alone, it's easier to do with a second person.

1- Start at one of the wooden mounts attached to the coop. Keep the terminal fence post next to the Schooner and lay out the first ten feet of the netting on the ground next to the front pipe.

2- Hold the terminal post about an inch away from the vertical portion of the mount. Press the two spikes into the wood, leaving indentations. This indicates where to drill holes for the spikes. Use a 21/64" drill bit to drill the holes for the spikes. Install the spikes. You may need a hammer to help get the spikes all the way down. Use a 3/4" conduit strap at the top of the post to hold the post upright against the vertical portion of the mount.



6- Stretch the bottom of the fence along the pipe to the corner until it's taut. Determine where in the netting the next fiberglass post will go. To do this, find the space between the vertical strands in the netting that's as close as possible to the curve of the rubber elbow. Likely, one spike will go through the rubber elbow and one will go through the pipe. Both spikes need to go into the wood at the corner.



7-Take a fiberglass post and weave it, starting from the bottom of the netting, straight up. Don't clip the top strand to the post cap yet. First, install the black clip, which secures the bottom strand to the spike. You may need pliers or a hammer to make this happen. Be sure that the clip is holding the netting to the spike.



8- Use the fiberglass post to help pull the netting taut again. Press the spikes into the elbow to leave indentations. Drill as you did for the previous post and hammer the spikes in.



9- Clip the top strand of the fence to the top cap of the fiberglass post.



10- Continue down the length of the HenPen. Use the indicator marks to identify where there is wood to drill into. Do your best to keep your posts as upright as possible along the whole length. The netting will sag. You will tighten it in a future step.



12- When you get to the end of the 100' netting, don't put the terminal post in. Instead, start the second set of netting at the mount on the other side of the Schooner. Continue exactly as you did on the first side.

13- When you have both sets of netting installed, the ends should meet nearly exactly at the middle of the back of the HenPen. Because of minor inconsistencies with the netting, there may be either an overlap or a gap. If there's an overlap, that's okay. Just overlap the netting and secure the spikes into the pipe. If there is a gap, you can unscrew the male end of the drainage pipe, use the hack saw to trim off the same length as the gap, then reconnect it and secure it with screws again.

14- Tie the two terminal posts together to avoid any gaps. Connect the two metal clips at the top.



15- Go to a corner of the frame and tie one end of the paracord to the top cap of a corner post. Cut the paracord at about six feet and tie the other end onto the black post, between the step and the post. Drill a 3/8" hole into the wood on the back of the frame's corner. This is where you will store the post while moving the coop. Repeat this step on all four corners and step the posts into the ground. Experiment with the placement of the post so you understand how to tighten up the netting. Don't stretch it so much that you negatively affect the integrity of the corner post.



16- With the netting taut, determine where you need to pin the netting to the pipe. Use the fence staples and a hammer to tighten up the bottom of the netting. It's helpful to add staples at the corners, near the posts, and in between posts. There is also likely a small gap where the mount meets with the first pipe. Reassess after moving the coop a few times. You can tug slightly at the netting to see where a chicken might be able to get out. Continue pinning the netting down until you're comfortable with the lack of gaps.



17- Note that there is nothing keeping birds in the coop on the front ten feet of the coop. Use chicken wire, hardware cloth, or sheet metal to block that area off. We do not recommend using anything like sheet plastic or tarps as wind can rip that off and birds have a way of scratching through it.

Optional Step

18 – Attach 12” conveyor belt to the inside perimeter of the entire frame. Use the unions to screw into. This will help fill gaps between the pipe and the pasture. It’s optional because you can also just walk the perimeter of the HenPen after moving it and shift the frame enough to set it all the way on the ground. If you are raising small birds, such as young pullets or young broilers, the conveyor belt will help block the smaller holes that these birds tend to sneak through.

You may also choose to place some material against the vertical portion of the mount if you have a gap that chickens can escape through. The point is that before you put birds into this system, you should make sure there are no escape points. Be thorough. We like to use second-hand rubber conveyor belt because it’s rigid but flexible and is generally very inexpensive.

If you don’t have access to conveyor belt, you can use anything from used feed bags or erosion control tubes to landscape fabric.

How To Use The HenPen

After assembling the entire HenPen, become familiar with how it responds to movement. It's wise to include a second person now. Be clear with each other about which hand signals mean what. We use four signals. During these signals, the helper (person walking behind the HenPen) is in charge of deciding whether it's safe to move or not:

- 1-Ready to move (Thumbs Up from driver and helper)
- 2- Go Forward (Helper points forward)
- 3- Pause (Helper puts one hand up)
- 4- Done Moving (Two arms out to the side)

Spend a little bit of time moving the coop and HenPen short, straight distances. One person can watch the frame and signal to the driver to pause if needed. Moving five feet at a time will show you which knots may be loose, which bracing needs adjustments, and generally how forces are applied to the whole frame. It's okay for the sides of the frame to swerve and bend. You do not want the frame to kink at any point, though.

Some things to look for during initial trials:

Watch the front pipes that attach to the coop. It's important that they stay at about 90-degrees to the coop. If they sag backwards, tighten up the rope at the corner. If they sag too much, they'll kink, lose integrity, and create gaps in the netting.

Watch the back of the HenPen. The full length timber in the back will keep the center from kinking, but adjust the rope (if used) to keep the back as straight as possible. If two people are moving the coop together, the second person should stand at the middle of the back and communicate to the tractor operator when to stop to make adjustments.

The sides of the HenPen tend to draw toward the coop when moving. The bracing and the ropes should maintain the shape pretty well, although there will be some bending/ swerving. That's okay. Again, kinking is not acceptable.

When you're done with a move, pull the frame back to straight and use the four corner posts with paracord to tighten up the netting.

When you feel comfortable with your rope tautness, your ability to move straight, and your communication, take a few broad turns. Don't start with sharp turns. You will have to learn how tight of a turn you can make and it's best to learn that slowly and give yourself plenty of room (250 feet or so) to turn.

Maintenance

There is very little maintenance to perform on the HenPen. The most important thing is to maintain the shape of the frame each day.

At some point, you may kink a drainage pipe. It's easy to simply replace the pipe or brace it with a piece of lumber. We keep an extra couple drainage pipes in our barn in case we need to replace one. At the front of the HenPen, the pipe is ten feet long and the landscape timber is 8 feet. Where the timber ends, the pipe may kink eventually. We have just used a scrap piece of wood to bridge the gap between the corner and the 8-foot timber.

Consider keeping a small repair kit in the coop with tools for quick repairs. You may want to keep the netting repair kit, a hammer, a small pry bar, a box of fence staples, extra rope/ paracord, and a note pad to write down improvement ideas to come back to.

If a lot of birds get out of the HenPen or coop on a certain day, we've found that simply placing a milk crate under the pipe in a couple spots in the evening before dark gives the birds an opportunity to get back into the fencing. We also leave the coop door open before sunset if there are a lot of birds out. Then shore everything up after the birds find their way back in. We only do this if there are many birds out. If the birds get spooked and charge the netting, they may break or severely damage a fiberglass post. It's easy enough to replace. Unclip the top of the netting on that post. Take a pry bar, tap it in between the pipe and the step of the post and work it out of the wood. Uninstall the small black clip at the bottom. Replace the post with a new one. You should have extra posts from the original kit. Be sure the bottom spikes are cut to length and that you replace the black clip.

Congratulations on completing the construction of the HenPen. We are sure you and your birds will enjoy the ease and quickness of the daily paddock shift. Mostly, we hope this inspires you to find new and creative ways to enjoy your farm.

Tag us on your social media so we can see your HenPen in action.

Remember to check our website occasionally for new DIY innovations to help your farm thrive.

Thank you for supporting us.

Michael and Courtney Gutschenritter – Three Brothers Farm