

# Building a Multi-Purpose, Mid-Size Pasture Shelter

—Dave Shields and Mike Badger

The quest for the perfect pasture shelter can sometimes feel like Goldilocks searching for porridge. If you feel the 75-bird and fewer shelters are too small and the larger greenhouse shelters are too big, then it's time to look in that "just right" middle ground. We'll examine the basic design of Dave Shields' latest 300 bird shelter at Pastured Life Farm.

In recent years, large scale shelters capable of housing up to 600 broilers have become popular for farms pushing their scale upward. These shelters need mechanical power to move, often require two people, and promise efficiency over having multiple small-scale shelters. Handy producers have knocked off these designs and built their own versions of the large-scale housing, but the concept is generally the same. It's a moveable greenhouse type structure with lots of ventilation; it's spacious, and it can be plumbed with water lines, and so much more. These structures require large pastures and open spaces.

In January 2017, Dave visited Cobb Creek and studied the mobile range coops. He loved the concept, but the design was too large to fit into the farm's silvopasture setup, and his scale didn't warrant that shelter capacity. As Dave studied the design, another area for improvement to this large schooner model became apparent. These large mobile shelters are still basically designed as greenhouses, which creates some design challenges.

The inspiration and the personal need led to a 14'x24'x7' daily move shelter from galvanized tube stock and top railing. The original design was really good, but each new build

brought slight improvements. The versatility, however, was apparent in the first season. It housed growing pullets, turkey poults, and then broilers.

The 14'x24' design will fit through a 16' farm gate and hold up to 300 broilers, which is the bi-weekly batch size at Pastured Life Farm. One question which determines batch size is also based on the number of birds that can be processed in one session, which takes into account your infrastructure limitations, such as processing equipment and cold storage.

Total cost for the materials comes to approximately \$1,200, depending on your local access to metal stock, plus your labor to construct. You should be able to source most of pieces locally and potentially find chain link fence that can be recycled into your shelter. The 2-1/2" skids are used from material

*(Continued on page 17)*



Figure 1: The 14'x24' pasture shelter at Pastured Life Farm.

typically found in carports. Often, old carports can be taken down for free or purchased for very little, if damaged in storms. The prototype at Pastured Life Farm was built using material salvaged from a storm damaged carport.

### Design

**Size:** 14'x24'x7'. This size shelter fits through most pasture gates, but it's also shorter so that it fits under low hanging branches as it moves through the pasture.

**Base:** The base is comprised of 2-1/2" tube stock in 8' sections so that it's a rigid, flexible, and modular skid. A key part of the design of this shelter is that the base (skids and end pieces) are designed to be moved and they provide the structural rigidity of the shelter. The hoop that forms the roof, therefore, does not need to provide structural integrity to the base. It can be lighter and not as tall as the commercial greenhouse variants.

*(Continued on page 18)*



Figure 2: A finished corner showing the 2-1/2" tube stock skid with the corner brace. The pipe nipple is attached to the corner to receive the hoop.

## Poultry Man, LLC.


### Everything for Poultry Dressing


- ⇒ Rotary and Manual Scalders
- ⇒ Mechanical Pluckers
- ⇒ Tables
- ⇒ Cones
- ⇒ MPUs

For prices and information, call:  
 Eli M. Reiff  
 570-966-0769  
 922 Conley Rd  
 Mifflinburg, PA 17844



## PREMIUM NON-GMO FEEDS



- ➔ Purity assurance of single sourced grains
- ➔ Formulated with  minerals
- ➔ Soy Free rations available
- ➔ Organics coming soon!
- ➔ Dealer and distributor opportunities

[www.krautcreeknaturalfeed.com](http://www.krautcreeknaturalfeed.com)      (937)459-0618

(Continued from page 17)

The 2-1/2" tube stock comes in 24' sections, but Dave cuts them in 8' lengths. By creating joints in the runners, the skid has some flexibility to follow the contour of the land and reduce gaps that may result from uneven pastures.

The cut tube stock can be fit together using a square 2-1/4" square tube coupler insert and screwed or bolted.

The 14' end pieces that form the front and back of the frame are cut down from 24' 2-1/2" tube stock. It can be welded in place, or in the case of Pasture Life's design, you can place a 2-1/4" x 2-1/2" tall nipple on the skid and a 2-1/2" x 2-1/2" receiver on the cross brace so this piece can be screwed into place with metal screws. The cut-off pieces from the original 24' sections can then be used to create angle braces.

There will be an approximate 5" gap in the front and back of the shelter that will help the shelter pull over

birds, sticks, or other debris. You'll need to close the gap off with a rubber mat or similar material so that birds don't escape the shelter when it's not moving.

**Corners:** The section of tubing left over from cutting the 14' front and back can be used to reinforce the corners. From the corner center point, measure 24" on the skid and 24" on the end brace (25.25" when measuring from the outside edges). You can cut and attach a 38" section of the tube stock to these points. The bolts will be placed at approximately 34". See Figure 3.

**Hoop Structure:** The hoop structures are made from galvanized 1-3/8" top rail (as found on chain link fence) on 4' centers. A 24' shelter will use seven hoops. To bend the top rail, use a 14' hoop bender.

Start with 14 21' pieces of top rail to form the hoops and the additional support pieces of the shelter. Cut each 21' top rail piece into 11' sections. Seven of the top rails need to be male and seven of the top rails

INTRODUCING  
**POWERSCRUB  
EGGWASHERS**  
THE NEW POWERFUL AFFORDABLE EGG SCRUBBER.

**Power Scrub II**  
The Most Powerful Egg Washer in the World

**Hilltop Acres**  
3319 Hilltop Acres Drive Dayton, VA 22821  
p 540.879.3575 | f 540.879.9591



Figure 3: Measure 24" from center of the corner along the end brace and the skid.

need to be female, so that two pieces join at the top center to form one hoop.

Save the scrap pieces to frame out doors and braces.

**Attaching the hoops:** The original design welds 6" pieces of 3/4" schedule 40 metal pipe on four foot centers along each skid to create nipples. These nipples provide a way to attach the hoops. See Figure 4.

If you are trying to minimize welds, attaching threaded 6" long 3/4" nipples to floor flanges could work.

**Purlins:** Use purlins to run the length of the shelter along the ridge and along each side. The top rail pieces are 21' long and the shelter is 24' long, which means you'll need to use some of the cut scraps from the hoops to span the length of the shelter. Designing the purlins to be 24-1/2' gives you enough room to attach the purlins. Mark your purlins every 4' and force your hoops to the correct position to help align the hoop portion of the build.

**Ends of Skids:** Adding the upturned angle pieces to the skids can be done in a couple of ways. If you have a fabrication shop nearby, odds are they can bend a piece of 2-1/2" stock that can be used on the ends and attached with 2-1/4" inserts like the rest of the skid. In Pastured Life Farm's design, the angle pieces are welded on the ends. The end pieces are essentially a 12" piece of 2-1/2" tube stock cut with a 22.5-degree angle (Figure 6A). Then cut a 1/2" groove in the corners with a grinder (6B) and bend in the sides (6C) to create a better surface for welding. Weld to the ends to the skids (6D).

**Finishing up:** With the frame and hoop built, you're left to finish the design with doors, a roof, and protective ends. Some of these decisions will be situational and depend on your ultimate purpose and climate. Recycled Billboard tarps could make suitable coverings for the hoop. Hardware cloth would be a good option to enclose the ends.

*(Continued on page 20)*



Figure 4: 6" nipples are attached every four feet along the length of both skids. Each side includes seven nipples. These nipples will receive the top rail hoops.



Figure 5: Two of three purlins can be seen in this photo on the inside of the hoops along the ridge and the right side. A third purlin is attached to the other side of the hoop.



Figure 6: If you're unable to bend the 2-1/2" square stock to form an upturned runner, you can design and weld the end piece of the skid to bend upward at a 22.5 degree angle.

(Continued from page 19)

**Movement:** The shelter can be moved in either direction with a small tractor, UTV, or a wench.

**Cost:** \$1,200 in material costs, which is about the same cost as four of the smaller hoop shelters used at Pastured Life Farm. See page 21 for a light weight, no weld, 10'x10' hoop house made from 1-3/8" top rail.

*Dave Shields owns Pastured Life Farm in O'Brien Florida with wife Ginger. For more information, visit [pasturedlifefarm.com](http://pasturedlifefarm.com). He graciously provided detailed build instructions for this article.*



**Prima Heat Lamp™**

**\$37**



800-282-6631 • [premier1supplies.com](http://premier1supplies.com)



Helping  
you  
farm!

**DAWSON GAP FARM**

2017 Workshops  
featuring  
Jeff Mattocks and Casey Trinkaus

Pastured Poultry April 3, 2017  
Pastured Pork May 15, 2017



authorized distributors of




**HILAND NATURALS**  
ORGANIC FERTILIZER & LIVESTOCK FEEDS



**Chaffhaye**  
Pasture-in-a-Bag

[www.DawsonGap.com](http://www.DawsonGap.com)  
540-668-6611

Organic Fertilizer • Soil Amendments • Livestock Nutrition



Jonathan Coulimore  
**Fertrell Distributor for  
WA, OR, ID, MT, CA,  
AK, HI, BC.**

Products in stock are: Original & Organic Poultry Nutri-Balancer, Laczyme, DE, Redmond Conditioner, Azomite, Non-GMO Corn and Roasted Soybeans, Fish meal and Kelp meal.

Jonathan Coulimore,  
Vancouver, WA  
503-209-1555 cell,  
e-mail [beerite@msn.com](mailto:beerite@msn.com)  
*Other products available on request.*

# 10'x10' Metal, No-Weld Hoop House

—Mike Badger

Before Dave Shields built his 14'x24' pasture shelter, he constructed hoop houses. The hoop house pictured uses 1-3/8" top rail commonly found in chain link fence.

The shelter is constructed from over 200' of top rail from off-the-shelf supplies. There are no welds.

This shelter is light enough to move by hand and heavy enough to withstand some wind. It's also tall enough to stand up inside. Each of these shelters cost approximately \$250.



If you keep an eye out on Craigslist and other sites, you may be able to find used chain link top rail fence or car ports for free or at a significantly discounted rate.

**REEDY FORK ORGANIC FARM**

Local Organic always non GMO Made in NC

**From Our Fork to Yours**

Livestock feeds for chickens, cows, ducks, goats, horses, pigs, sheep, and turkeys

www.ReedyForkFarm.com 336.449.4888  
 Certified Organic. NON-GMO. Grains Sourced from U.S.A.

**SCRATCH and PECK FEEDS**

FAMILY OWNED SINCE 2010

You are what your animals eat™

**ORGANIC FEEDS**

SOY FREE    WHOLE GRAIN    RAW

**SCRATCHANDPECK.COM**