

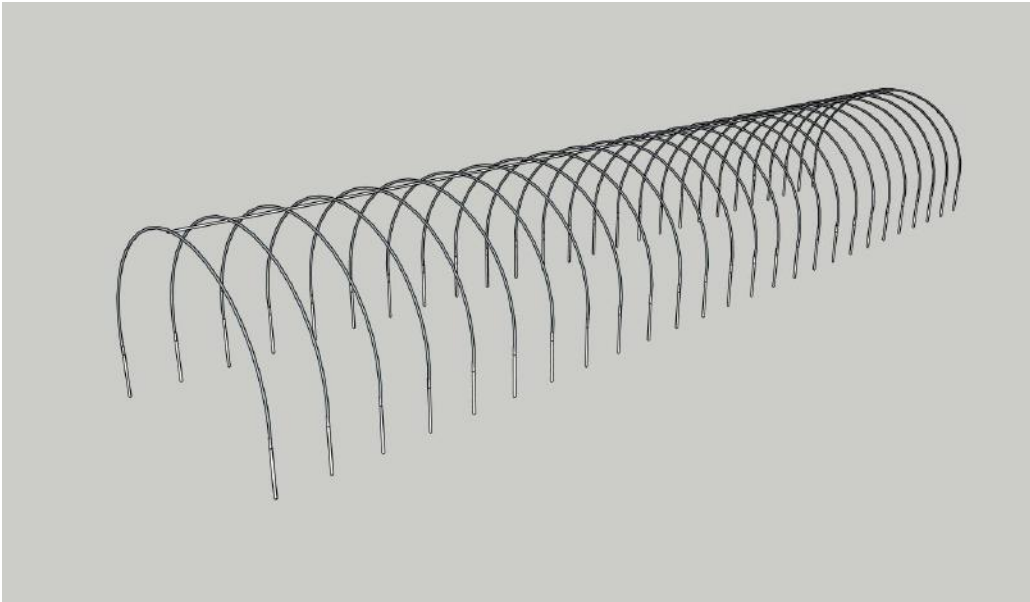


14' & 20' Shade Hoop House

Instructions & Owner's Manual

Please read ALL instructions before beginning your build.

Rev. Date 2025-12-29



Thank you for choosing Bootstrap Farmer for your farm's equipment needs. Our Shade Greenhouse Kit is manufactured with 100% USA-made steel and aluminum for maximum strength and durability.

Our team strives to provide quality products that are built to last. From all of us at Bootstrap Farmer, we thank you for putting your trust in us.

If you have any questions, please reach out. We are available 7 days a week by phone, email, and chat.

1(888)-406-1982 contact@bootstrapfarmer.com www.bootstrapfarmer.com

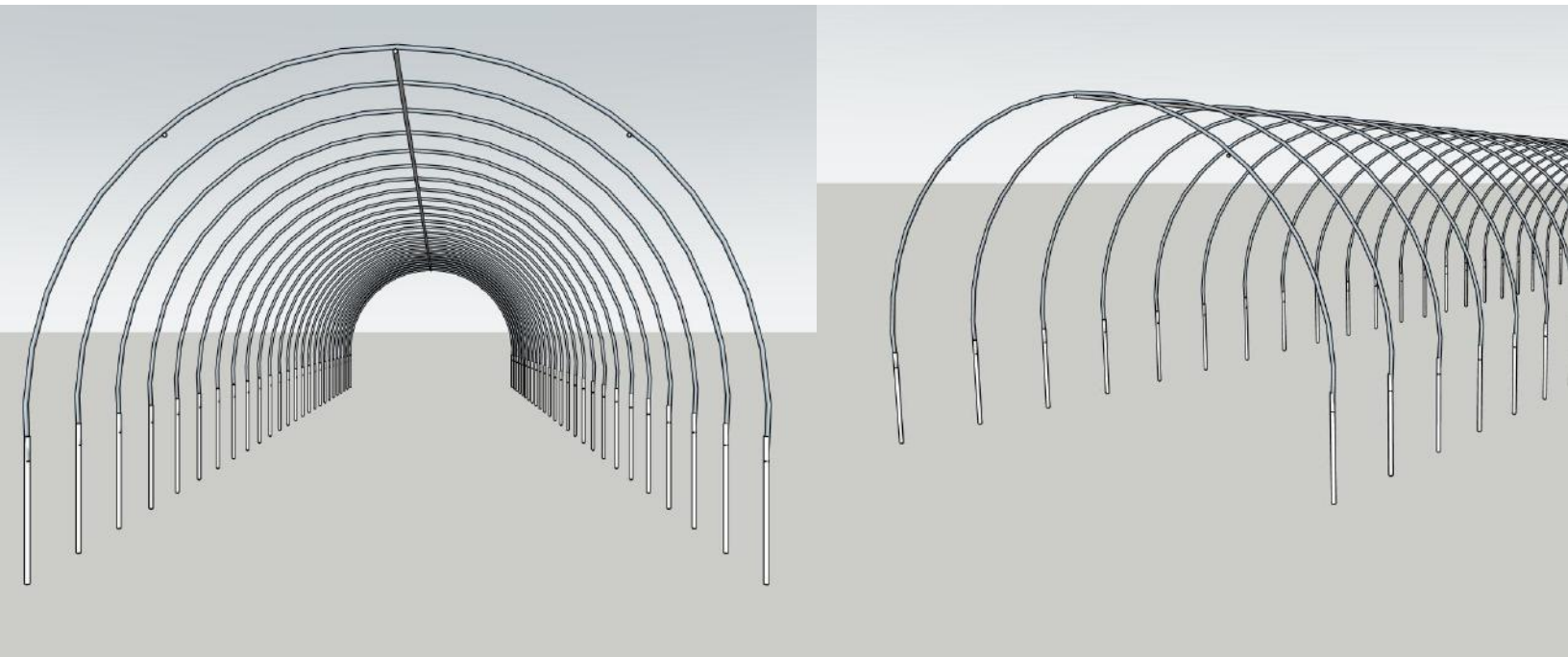
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Getting Started

BEFORE BEGINNING INSTALLATION, PLEASE CAREFULLY READ THROUGH ALL INSTRUCTIONS. CONTACT OUR TECH TEAM WITH ANY QUESTIONS YOU HAVE BEFORE BEGINNING YOUR BUILD. WE ARE AVAILABLE VIA EMAIL, CHAT, OR PHONE 7 DAYS A WEEK 888-406-1982 EXT. 1

CAD DRAWINGS



Recommended Tool List

For your safety: Follow all necessary safety precautions when using power tools and building equipment. Personal protective gear, such as gloves, eye protection, earplugs, and closed-toe shoes, is recommended.

- Clamps
- Drill & drill bits (1/4-inch bit included)
 - Impact driver not recommended for driving self-tapping screws.
- Extension cord
- Ground post driver (included)
- Levels (long, magnetic & string line)
- Roll of mason line
- Metal file
- Metal saw (reciprocating, chop, or hack saw)
- Grinder
- Slip joint pliers
- Scissors/blade
- Sledgehammer (double jack)
- Single jack (3-pound hammer)
- Center hole punch
- Socket set & adjustable wrench - (1/2" ratchet or nut driver)
- Spare rope & tennis balls
- Stakes/markers
- Step ladders (at least one tall enough to reach the peak of your roofline; see height warning below).
- Tape measure
- Extendable painter's pole

HEIGHT WARNING: The 20' kit has a center height of 11'4", which means you will have to work 12-14' from the ground. The 14' kit has a center height of 9'4". BOOTSTRAP FARMER cannot be held liable for unsafe work practices. Installers and farm owners are encouraged to rent a lift from your local equipment rental company. Refer to their safety equipment recommendations and best practices for the unit you rent during use, loading, unloading, and transport. On the build site, keep the lift level and on packed solid ground. **Do not operate in inclement weather.**



Scan QR Code for information on tools or visit

https://youtu.be/kGID3JRKwLQ?si=7oPFhyvI_kSCdm6T

Location of Shade House

We recommend selecting a flat area of land, free of trees, and far enough from existing structures to avoid runoff and snow drifts. Pay attention to the drainage in the area. Additional groundwork may be required to divert runoff from regular greenhouse watering. Make sure you can access the area with water.



****Always call 811 before you dig or install ground posts to have gas and utility lines marked or check your site map.**



Scan QR for info on **Greenhouse Orientation and Site Prep before you build** or visit <https://www.bootstrapfarmer.com/blogs/building-a-greenhouse/ideal-location-for-a-greenhouse>

Parts List - Kit Components

Unpack the shipment and verify against the packing list to ensure all materials are included. If any discrepancies are noted, please notify us immediately at (888) 406-1982 so we can get parts to you as soon as possible.

Frame Hardware Kit

**** Check your pick-list as hardware/part quantities are dependent on kit size.**

1. ¼ x 2" bolt galvanized
2. ¼ nut galvanized
3. ¼ split lock washer galvanized
4. ¼ flat washer galvanized
5. #8 x ¾ zinc self-tapping
6. #10 x ¾ zinc self-tapping
7. ¼" x 3.5" Carriage bolt
8. 1 ¼" Phillips flathead wood screw

Hoop House Frame Parts

1. Cross connector 1.375
2. (2) pipe strap 1.375
3. 75-inch swaged ridge pole
4. 36-inch extension ridge pole
5. 48-inch 1.66 drilled ground post*
6. Lock channel & spring wire
7. Wire Hoop Pack**

*Ground Post Pack Options

14/20- (18) 14/40- (28) 14/60- (38) 14/80- (48) 14/100- (58)

20/20- (20) 20/40- (30) 20/60- (40) 20/80- (50) 20/100- (60)

**Hoop Pack Options

- 14' Hoop Pack (2) 98" swaged & (1) 98" Pole
- 20' Hoop Pack (3) 101.25" swaged & (1) 101.25" Pole

Ground Posts

Optional: Install landscape fabric before installing ground posts. Line the perimeter of the greenhouse 1' inside and 3' outside with landscape fabric, to prevent erosion from the water the greenhouse sheds. This also eliminates mowing and weed-eating next to your greenhouse and prevents debris from accidentally being thrown through your greenhouse covering.



Scan **QR Code** for information on **Landscape Fabric** or visit

<https://youtu.be/spzkFIPTOWE>

Tools

- Sledgehammer/double jack
- Single jack (a smaller sledgehammer with a handle under 2' in length)
- Tape measures; ideally, at least one that measures the full length of the diagonal between the corner posts.
- Levels: a line & magnetic level.
- Mason line
- Stakes
- Pencil, paper, and a calculator

Every kit we sell comes with a specialized tool called a ground post driver (pictured to the right). It is placed on the top of the post to keep it from mushrooming when you hit it with a sledgehammer.



Parts

- 48x1.66_16GA_HL

* Quantity of posts dependent on kit size.

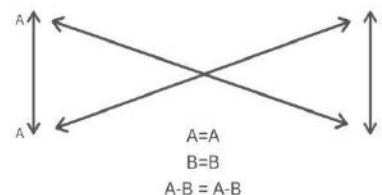
Squaring the Structure

Making sure that your four corner stakes are square will provide a solid base to work from. This ensures the rest of the stakes are easy to install plumb and level.

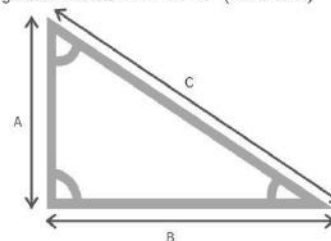
Tools

- Sledgehammer
- Tape measure
- Bubble levels of various lengths
- String line
- Wooden stakes or marking flags
- Ground stake driver (include

TWO WAYS TO SQUARE
A HOOP HOUSE



Pythagorean Theorem $A^2 + B^2 = C^2$ (3 4 5 Rule)



Set your corners using one of the following methods.

Measure method - First measure length to length. Then mark the width. It should be 14' or 20', depending on your kit. Then measure diagonally, making sure the diagonal measurements are equal. Double-check that all length, width, and diagonal measurements are equal, then install stakes. This ensures your greenhouse will be square.

Pythagorean Theorem method - Sink a marking stake starting at your first desired post location. Use your tape measure to measure and mark a line at 3 feet and a second line at 4 feet perpendicular to the first. Then place a line directly across both marks. The third line should measure 5 feet and give you a square corner.

You can extrapolate from this triangle to the desired length and width to sink your second and third stakes for the corners. Use a mason line from both the second and third stakes to intersect at a right angle for the location of the final corner stake. Check all measurements.

Installing the Ground Posts

Once your area is measured out with temporary stakes in place. Install each corner ground post from the previous step. Place your posts where you previously marked the corners, then drive them into the ground.

While driving posts into the ground, ensure the poles are plumb in all directions. Check for levelness on the front and sides and adjust as needed..

After the corner ground posts are installed, re-measure length, width, and diagonals one last time. If you made a mistake, it's not too late to fix it with minimal effort. Once you are satisfied, tie a string line around the outside of the corner posts.

This will help keep all your ground posts aligned so you don't get wavy hoops later on. Install ground posts every 4' on center following your line, keeping approximately 2' into and 2' above ground.

Driving the Ground Posts

Read each step thoroughly before driving the ground stakes

1. Position and install corner stakes: Place the corner ground posts at your pre-marked spots. Start driving these posts into the ground, ensuring they're correctly positioned where you initially marked. Each stake should be 2' in the ground and 2' out of the ground. The hole should be facing parallel to the length of the hoop house
2. Check for vertical alignment: As each post is driven into the ground, continuously check to ensure it's perfectly upright (plumb) from all angles using a level. Make adjustments as needed to keep the posts straight.
3. Verify measurements: Once the corner posts are in place, re-measure the length, width, and diagonal distances to confirm accuracy. It's easier to correct any discrepancies at this point.
4. Use a string line for alignment: Tie a string line around the outer side of the corner posts, positioning it 2 inches below the top. This string line will guide the installation of the remaining ground posts, ensuring they are all at a uniform height.

5. Install additional posts: Following the string line as a guide, install the remaining ground posts every 4 feet on center. Each stake should be 2' in the ground and 2' out of the ground. (If your ground isn't level, adjust the depth of the ground stake so you have enough sticking out of the ground to bolt the hoop and base board to.)

6. Maintain post orientation: During installation, check each stake for levelness on the front and sides and adjust as necessary.



Scan QR for info on **Installing Ground Posts** or visit

<https://youtu.be/S0iSPnsYVi0>

Hoops

The hoops will come bundled together, and you will need to construct them.

Tools

- Drill
- #8 self-tapping screw

Parts

14' WIDE HOOP set contains:

- (2) 96" swaged pole (bent)
- (1) 99" pole (bent)

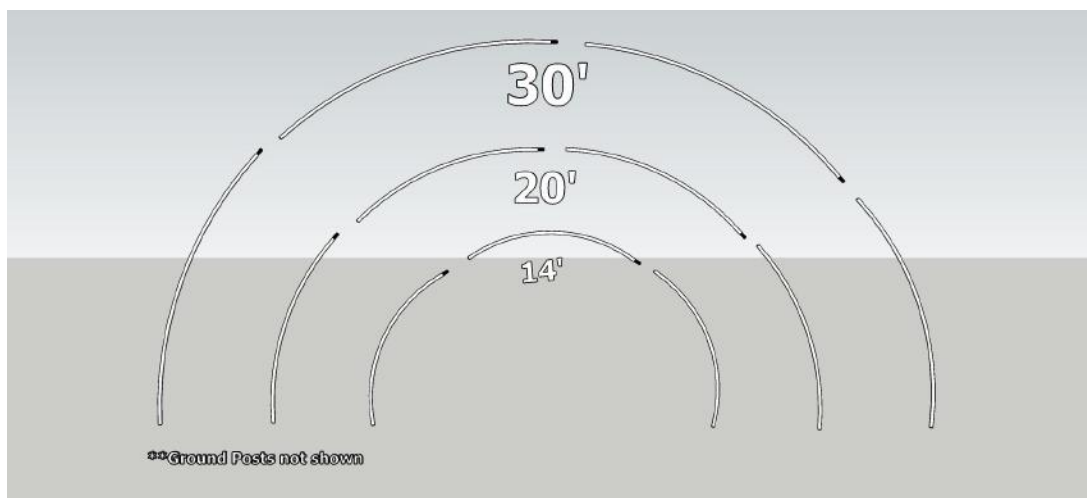
20' WIDE HOOP set contains:

- (3) 96" swaged pole (bent)
- (1) 99" pole (bent)

Pole Layout for Hoops

Our pre-bent poles (96" swaged) have one open end and one swaged end to reduce the diameter, similar to a pipe nipple. This allows you to connect poles without fittings. The final hoop section (99" open) is open on both ends. When properly constructed, the bottom of the hoops will slide into the ground posts.

****Always drill on the side of the hoop so that the screw will end up parallel to the ground when the hoop is placed upright to protect the covering from damage.****

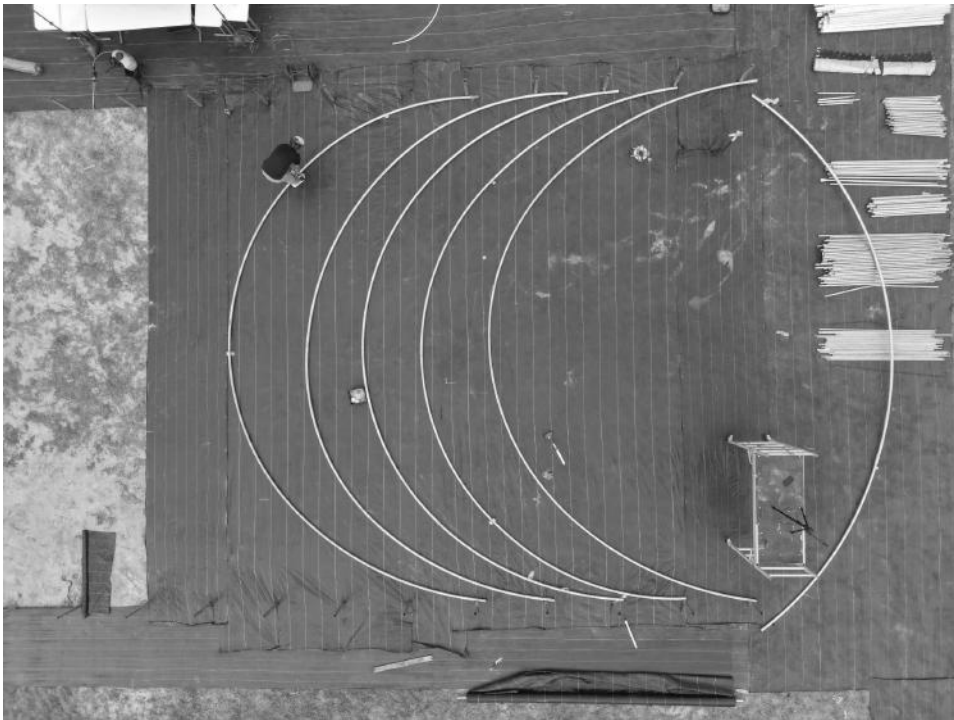


Connect and Install Hoops

- Piece your hoop set together on a flat surface. For consistency, assemble all your hoops in the same spot so they match.
- Using two #8 self-tapping screw, connect the hoop together to prevent twisting and separation. Screwing straight down while the hoop is lying flat will ensure the screw is parallel to the ground once you raise the hoop.
- When all of the hoops are connected, place them near the ground posts.
- With a partner, stand the hoops up and place one side into a ground post and then the other. For consistency, have the same person go first. At this point do not force the hoops down into the ground posts all the way. Adjustments will come on the next couple of steps.



Scan **QR** for info on **Setting Hoops** or visit <https://youtu.be/eXq7C5LAeVQ>



Installing Hoops to Ground Posts

1. While on a ladder, one person eyeballs the top of the hoops as a partner adjusts the height of the hoops at the ground posts. (20' has a center height of 11'4". The 14' has a center height of 9'4")
2. Adjust the height and sides until they align and remain level along the structure.
3. When you are satisfied with the hoops being aligned, drill a 1/4" hole through the hoop at the hole in the ground post. Secure with 1/4"x2" bolt, flat washers, a lock washer, and a 1/4" nut.

Do not stress out about the hoops looking uneven when in the ground posts at this point. Adjustments will come later.



Scan **QR** for info on **Installing Hoops to Ground Posts** or visit

<https://youtu.be/S0iSPnsYVi0>



Ridge Poles

End Wall Pipe Strap

The end wall pipe strap helps to keep the ridgepole from extending past the end hoops and poking the covering end walls.

Note: Since each hoop will be connected to the first end wall, it should be carefully made plumb and held that way as you make the connections. You can do this easily using stakes and rope. Wrap a rope around the hoop. Using a magnetic level, stake the rope securely on either side of the hoop with the hoop directly perpendicular to the ground. If needed, move the stakes slightly left or right to secure the hoop in the proper position.

Tools/Parts

- Ladder
- Clamps
- 5/16" nut driver
- Drill
- #10 self-tapping screws
- (2) pipe strap 1.375



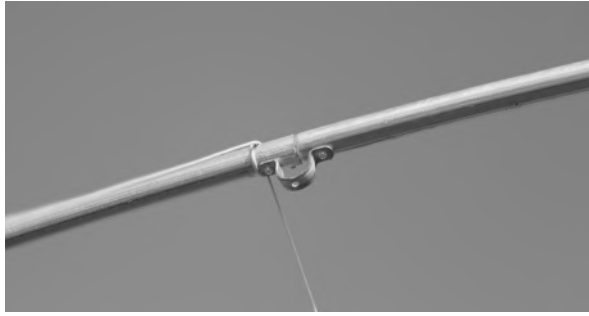
Scan **QR** for info on **Stabilizing Your End Wall** or visit

<https://youtu.be/eXq7C5LAeVQ?t=300>

Installing End Wall Pipe Straps

1. Secure the pipe strap to the underside of the center of the endwall hoop by predrilling and loosely securing it with #10 self-tapping screws.
2. Insert the ridge pole through the strap until it is about 1/8-inch short of the outside of the end hoop. This is to prevent the ridge pole from sticking out past the last hoop.

3. Pre-drill and screw the pipe clamp into the hoop using the center hole on the pipe strap using #10 self-tapping screws. Tighten all 3 screws until they are secure.



Cross Connectors and Ridge Poles

Ridge poles and cross connectors work together to connect and stabilize the hoops. Optional purlins and additional cross connectors further stabilize and are installed the same way. See next page for pictures.

Tools	Parts (PER 20FT)
• Rope/stakes • Drill w/ ¼" bit • Stepladder • Saw • Ratchet and sockets • Tape measure • Wrench • Cross connector 1.375" • 75" swage ridge pole • 36" extension ridge pole	• (15) ¼ x 2" bolt galvanized • (15) ¼ nut galvanized • (15) ¼ split lock washer galvanized • (30) ¼ flat washer galvanized • End wall band clamp 1.375" • #10 self-tapping screw

Installing Ridge Pole and Connectors

1. Loosely place a cross connector on top of the remaining hoops.
2. Starting at one end wall, carefully verify that it remains plumb.
3. Connect the ridge poles with two #8 self-tapping screws, driven from the bottom or from the side at the swaged connection. Insert the pole into the end wall cross connector and the next hoop cross connector.
4. Continue adding ridge poles until the other endwall is reached.

Bootstrap tip: Drilling guide holes for the two screws into your ridge pole before putting it up will make it easier to connect the poles while you are up a ladder.

5. Center the loose assembly at the top of the hoop, double-check the plumb of the end wall, and tighten the connector bolt with a ratchet.
6. Measure 4' on center from the first tightened connector to the next connector and secure at that point.
7. Repeat this process for each hoop as you make final plumb adjustments while keeping cross-connectors 4' apart. Depending on the length of your greenhouse, use a 36" extension on the end of the ridge pole or a 75" ridge pole, then cut off the excess.
8. Repeat end wall pipe strap installation for the final hoop.



Scan **QR** for info on **Ridge Poles** or visit

<https://youtu.be/AfTKTvcqw20>

Install Baseboards (Optional)

For baseboards, we use the 1" x 6" x 8' ledger boards. These will be in contact with the ground, so using a water-resistant wood like cedar, redwood, or pine is ideal. We also recommend coating the boards with latex paint.

1. For the first baseboard, we cut off the first foot so the board doesn't end on a ground post.
2. Line up the cut board with the front of the first ground post.
3. Clamp the board to the post and use your 1/4" drill bit and drill through the wood and the ground post.
4. Insert a 3.5" x 1/4" carriage bolt & tighten with a lock washer & nut on the outside.
5. Where two pieces of wood butt together, connect them with a scrap piece of 1" x 8" and attach with 2-1/2" wood screws (Phillips flat head #8).
6. Be sure not to overdrive these screws as you don't want the screw tip poking out the other side as it could pierce your greenhouse covering.
7. Once you have all the side baseboards attached, you can install the baseboards on the end walls, if desired, with a 2" x 6" x 12' board and a carriage bolt and lock washer and nut.

Installing Hip Boards (Optional)

There is no hard rule regarding where to place your hip boards, but most farmers choose to set hip boards around 4' or more from the ground. Hip boards are installed using the same process as the baseboards.

1. For our hoop houses, we typically place the bottom of the hip board about 36 inches from the top of the ground post. (4'-5' from the ground)
2. Mark each hoop at your desired height
3. Similar to your baseboards, you want to cut the first 1 foot off your hip board so the butt joints don't land on a hoop.
4. Line up your boards on the marks and use a clamp to hold them in place.
5. Drill a 1/4" hole through your board and then through the hoop.
6. Place a zinc-plated 3.5" x 1/4" carriage bolt through the wood and attach it with a washer and nut on the hoop end.

Installing Lock Channel

The spring wire channel can now be installed on the hoops. It is optional to install on hip boards to connect your shade cloth along the length of the structure, but highly recommended in areas with high winds. Pictures on the next page.

Tools	Parts
• Drill & Drill Bits • Clamps • Metal Saw • Bubble Level	• #8 coarse threaded screws (it may be necessary to pre-drill the lock channel to install these) • lock channel

End Wall Hoop Lock Channel

1. Install spring wire lock channel on the first and last arches/hoops.
2. Use #8 self-tapping screws to install into the metal hoop
3. Starting at the top of your baseboard, run the lock channel over the entire hoop, but not overlapping the hip board. It should face the sky/outward.
4. Use a clamp to help you keep the channel in place while you bend it along the curve.
5. Your lock channel will easily bend to the curvature of your hoops. Do not kink or bend the channel before installing it.

Hip Board Lock Channel

1. Use clamps to hold the lock channel level on the hip board.
2. Install at least four of the #8 screws per piece of lock channel, six in higher wind areas and on larger-sized hoop houses.
3. If you run into difficulties, you can drill guide holes through the metal and wood before installing screws.
4. The channel has ridges in the middle to help guide screws into place.
5. Be sure that the lock channel is installed level from one piece to another. If the spring wire lock channel is not straight, it can create corners where the pieces join, and the covering may snag.
6. Repeat the above steps 1-4 for all baseboards and hip boards.

Before installing your covering, use a broom or shop vacuum to remove any metal filings from lock channel installation.



Shade Cloth Installation

- Unfold and orient the shade cloth to match the hoop house.
- Slide the shade cloth up and over the hoop house and center it.
- Secure the shade cloth using either pieces of spring wire or shade cloth clips
- Securing the Shade Cloth
 - **Spring Wire and Lock Channels (the preferred method)** - Center the shade cloth over your structure and secure it with short lengths of spring wire at intervals of every few feet.



Scan **QR** for info on **Shade Cloth** or visit

<https://youtu.be/KIJ0sz6FJJE>