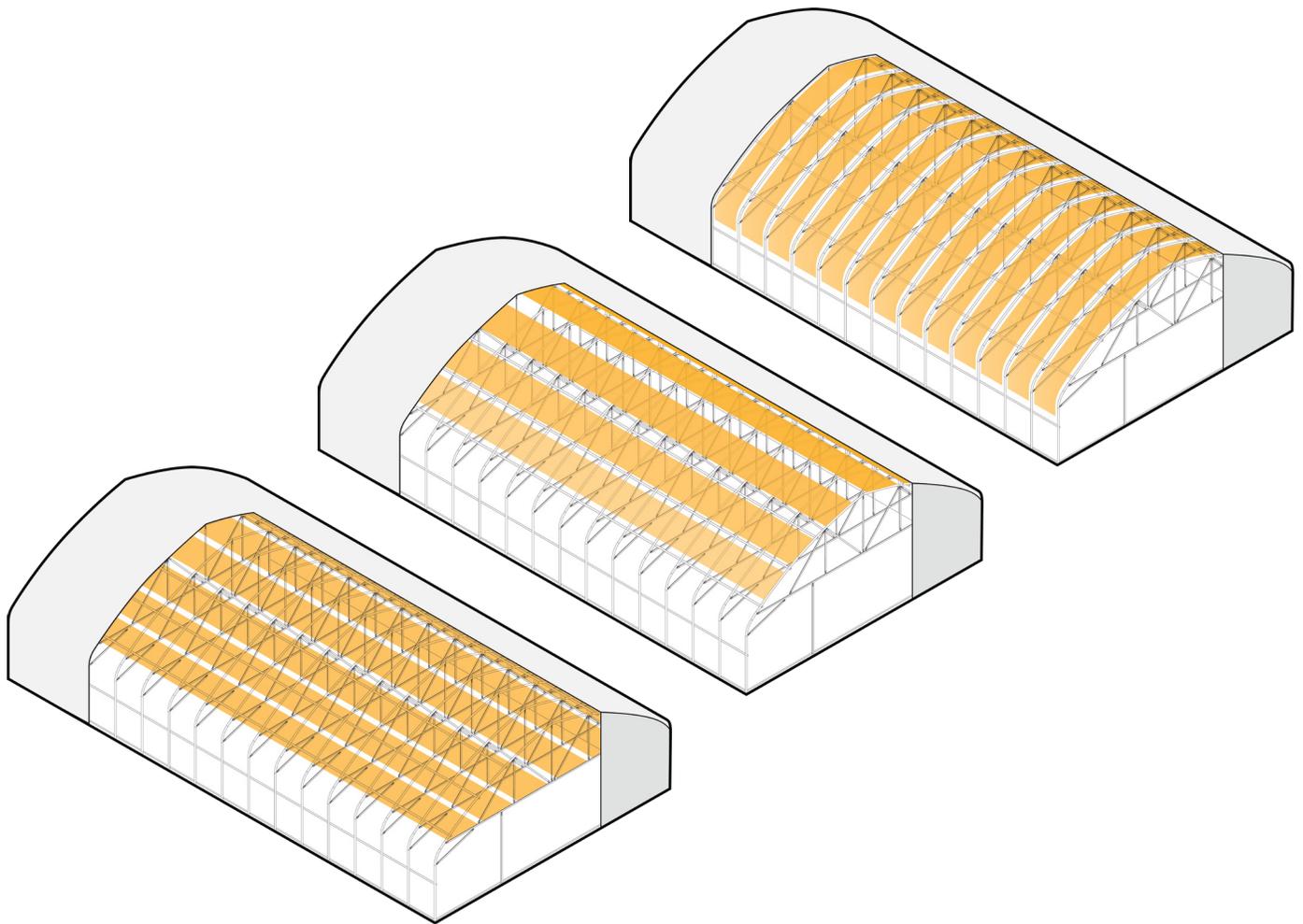


UbiGro

Installation Guide



UbiGro is a layer of light that helps plants get more from the sun. It uses fluorescence to create an optimal light environment for greenhouse crops. With proven yield boosts in commercial greenhouses, UbiGro is an electricity-free spectrum enhancement technology designed for any greenhouse construction.

UbiGro is a retrofit product designed to be installed under a greenhouse cover and over plants.

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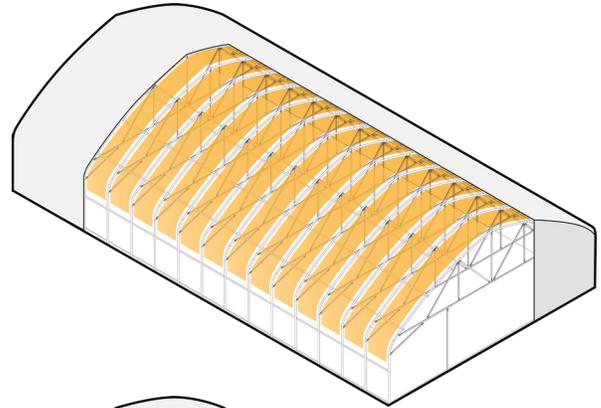
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Before You Begin

Determine Installation Method

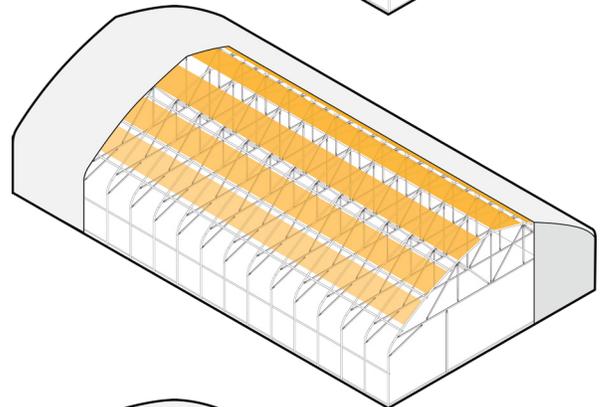
Side-to-Side (pg 3)

UbiGro film is installed along the shorter dimension of the greenhouse (left-to-right). The film follows the curvature of the greenhouse and is supported by cables that are installed along the long dimension of the greenhouse (front-to-back).



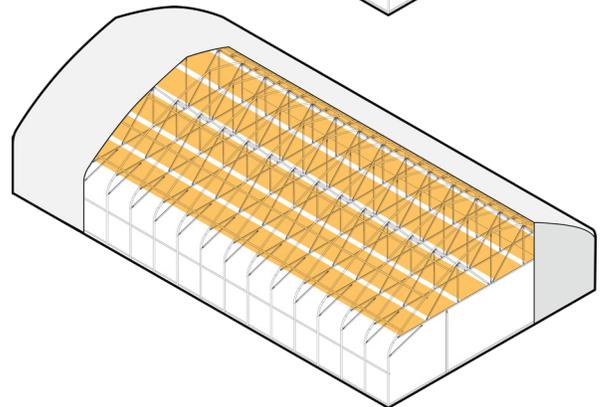
End-to-End (pg 8)

UbiGro film is installed along the longer dimension of the greenhouse (front-to-back). The film is supported by cables that are installed along the width of the greenhouse (left-to-right), following the curvature of the greenhouse.



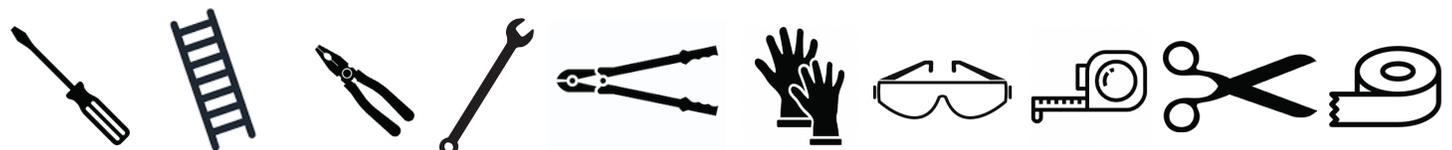
Horizontal (pg 13)

Users suspend UbiGro horizontally above crops, but not up against the greenhouse cover. If greenhouse infrastructure allows, this method requires little hardware, attaching the ends of the strips to end-purlins with grommets and cable ties or self-tapping screws.



Gather Materials

Screw driver, ladders, channel locks or pliers, wrench or socket set, cable or bolt cutter, gloves, safety glasses, tape measure, scissors, masking tape.



Installing UbiGro Side-to-Side

1. Measure Dimensions

1a. Measure Cable Length

Determine the attachment points on either end of the greenhouse where the supporting cables will be fastened (typically the outermost purlins or 1 purlin in from either greenhouse wall).

After that dimension is measured, next you will need to calculate how many cables will need to be installed. The recommended spacing between the cables is 6-10 ft (2-3 m) in order to ensure UbiGro is properly supported.

Your Notes

Length between cable attachment points	
Number of Cables to be Installed	
Total length of Cable Needed	

1b. Measure UbiGro Length

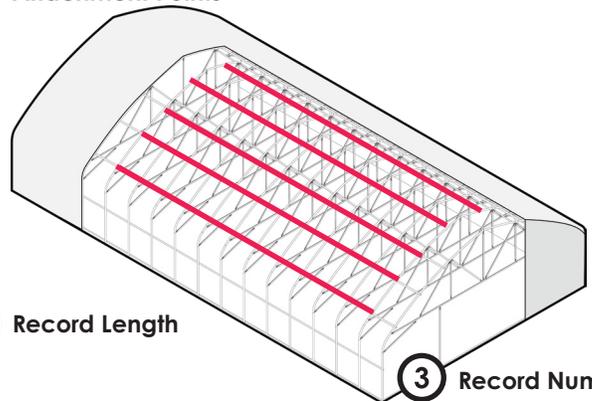
To determine the length of each UbiGro section, accurately measure along the length of each purlin, starting from one sidewall (where the film will be anchored) and ending at the other sidewall while following the curvature of the greenhouse.

Take that measurement and subtract 6 in (15 cm) to allow for tensioning the film when installed. Finally, determine how many sections of UbiGro will be needed. It is recommended to place each UbiGro section as close to each other as physically possible to ensure maximum coverage. In some cases, there may be small gaps between each film section (1-2 ft, 30-60 cm) depending on purlin spacing.

Your Notes

Length between Purlins minus 6 in	
Total Number UbiGro Sections Needed	

1 Determine Attachment Points

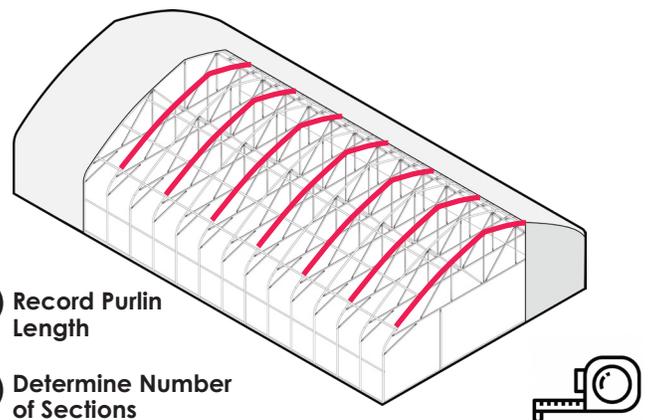


2 Record Length

3 Record Number recommended spacing 6-10 ft

1 Record Purlin Length

2 Determine Number of Sections



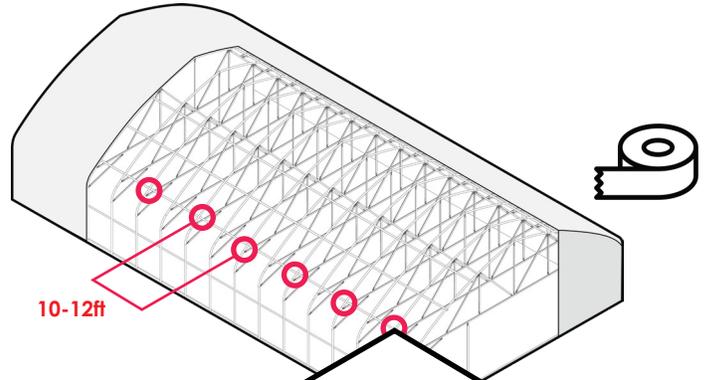
Installing UbiGro Side-to-Side

2. Install Clamps

2a. Determine Location for Rubber Clamps

Using your measurements from Step 1, determine where the rubber clamps will need to be installed in your greenhouse.

Recommended spacing is one clamp every other purlin or one clamp every 10-12 ft (3-4 m). For wide greenhouses, clamps will be needed for each cable that will be installed lengthwise (cables should be spaced between 6-10 ft (2-3 m)). We recommend marking the position of each clamp for easy reference when installing the hardware.



2b. Secure Clamp Around Purlin

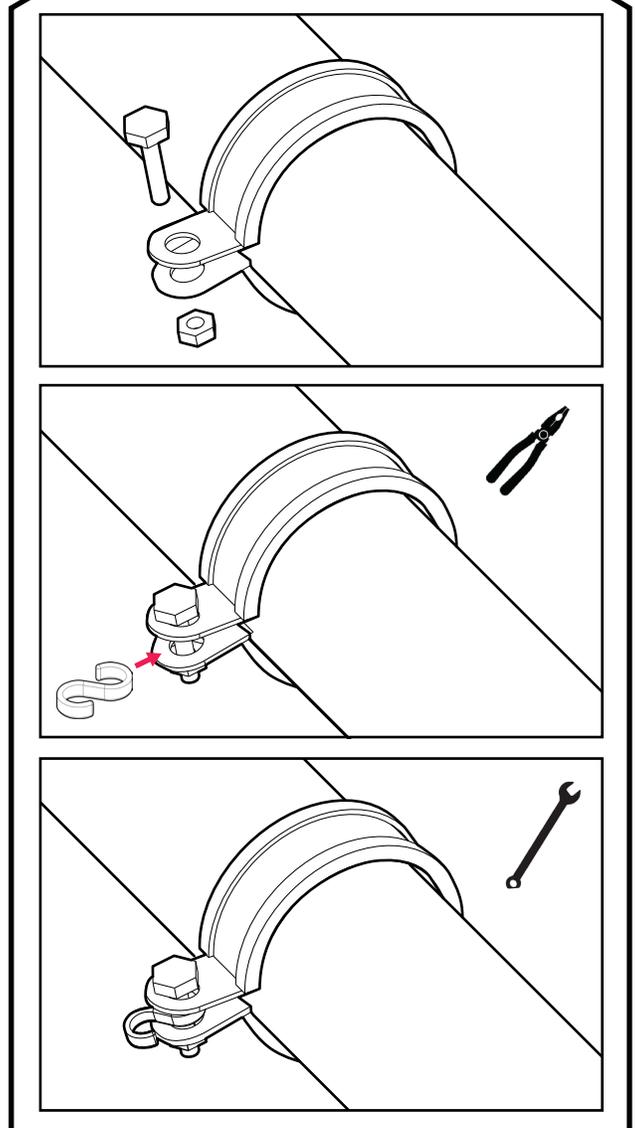
Next, place a clamp around the purlin and using a bolt and nut, partially tighten the clamp around the purlin so it will not slip.

2c. Secure S-Hook

Place an s-hook on the fastening bolt, between the clamp ends. Close the s-hook around the bolt using channel locks or pliers

2d. Tighten & Repeat

Finish tightening the bolt to secure the clamp in place. Repeat procedure for each purlin until all clamps have been installed

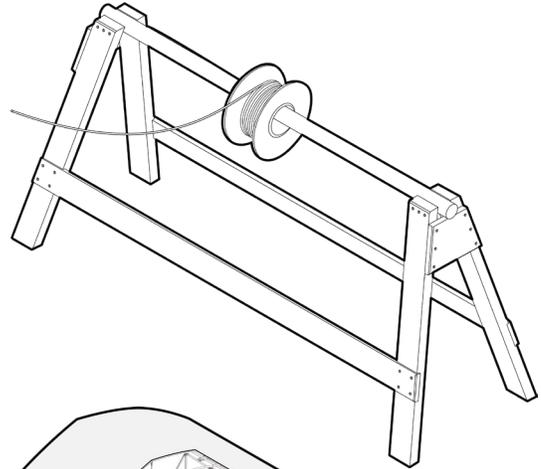


Installing UbiGro Side-to-Side

3. Install Cable

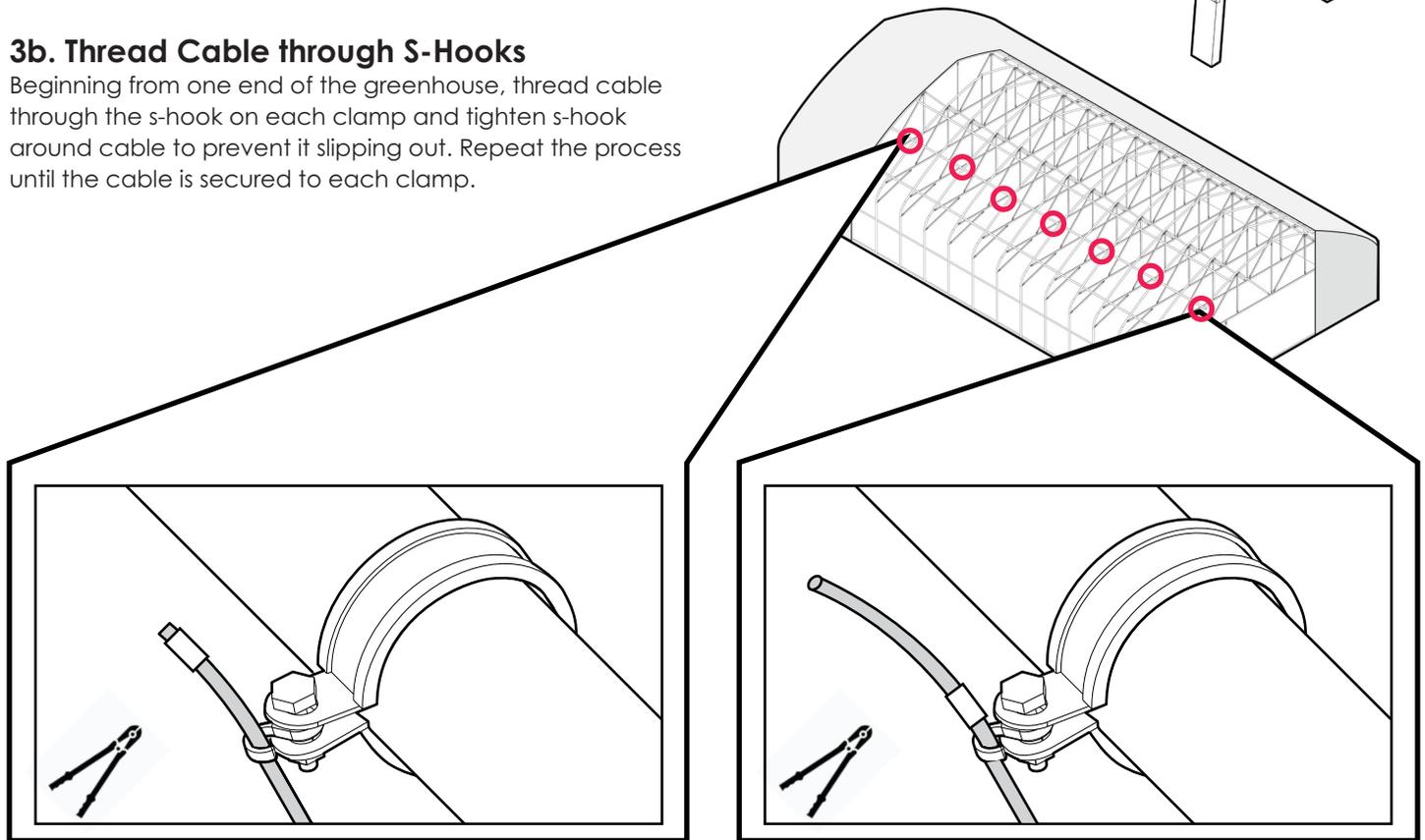
3a. Prepare Airline Cable

Once all clamp hardware has been installed, set up airline cable so it can be easily unwound (e.g. between saw-horses with a pipe)



3b. Thread Cable through S-Hooks

Beginning from one end of the greenhouse, thread cable through the s-hook on each clamp and tighten s-hook around cable to prevent it slipping out. Repeat the process until the cable is secured to each clamp.



3c. Clamp Cable End

At one end, using cable cutters clamp the end of the cable with a cable stop, placed ~6 in (15 cm) from the end of the cable. Be sure not to cut all the way through the cable stop. A second stop can be installed after the first as back up if needed.

3d. Clamp Other Cable End

After cable stops are installed on the far end of the greenhouse, repeat the process on the other end by cutting the cable ~1 ft (30 cm) beyond the final clamp and while holding the cable taut, installing a cable stop as before. Repeat process for each cable installation

Installing UbiGro Side-to-Side

4. Cut UbiGro

4a. Unbox UbiGro

First, open the package containing your UbiGro roll by cutting outer straps and removing the upper box. Next, remove any protective plastic or paper covering the roll. Then cut out the front face of the box so the film can be accessed and rolled out. Alternatively, a fork lift (if available) can be used to lift the film out of the box for easy access.

4b. Prepare for Unrolling

If it is available, it is recommended to set the UbiGro on a stand (e.g. sawhorses and a pole or using a forklift) to help with rolling out the film.

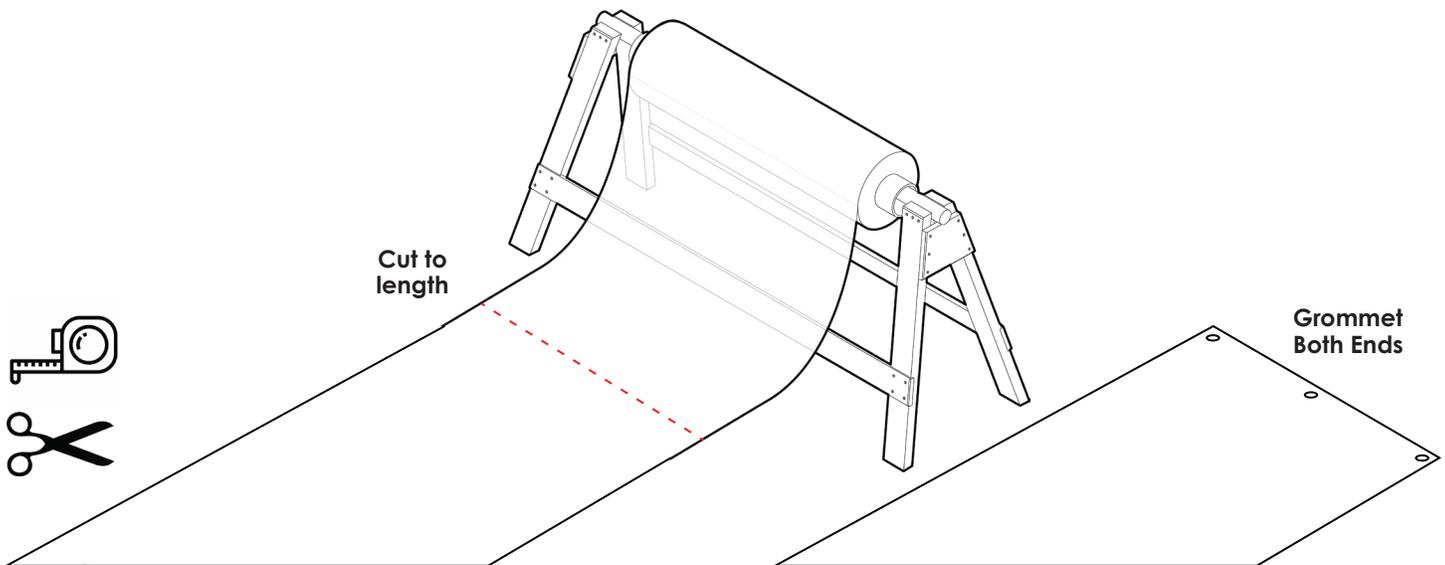
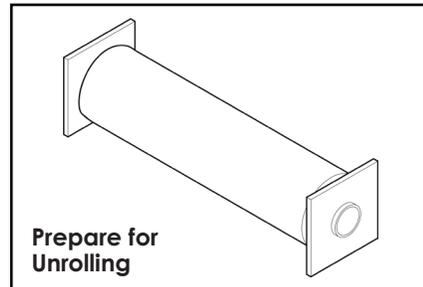
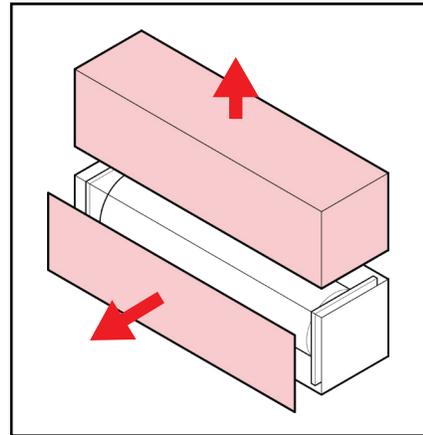
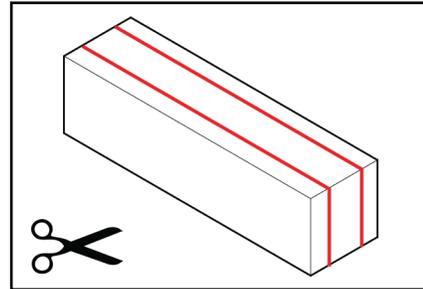
4c. Cut to Length

Using the measurements taken in Section 1b, roll out UbiGro and cut to the necessary length. Repeat for each section needed.

Alternatively, the roll of UbiGro can be placed below the section to be installed and can be cut to length directly.

4d. Grommet Both Ends

Start by installing two or three grommets (depending on fastening method) on both ends of the UbiGro section. These will serve as anchor points to secure the ends of the film. We recommend #2 grommets with 3/8" eyelets.



Installing UbiGro Side-to-Side

5. Install UbiGro

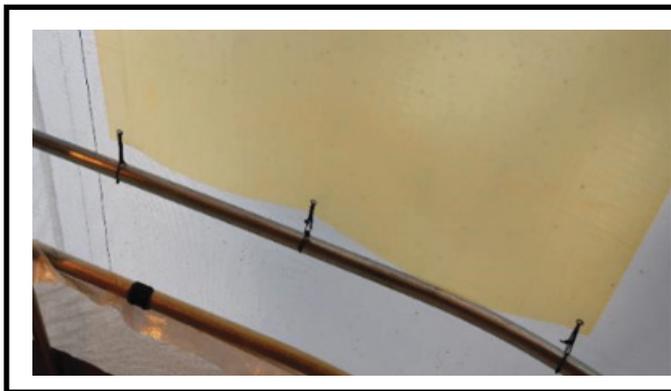
5a. Thread UbiGro over Airline Cables

Starting from one side of the greenhouse, thread end of UbiGro (with grommets installed) above the supporting airline cables (below the greenhouse cover) until you reach the opposite side of the greenhouse.

5b. Secure One End

Next, secure one end of the UbiGro section using the pre-installed grommets.

Depending on your greenhouse construction, use your preferred fastening method (cable ties, airline cable, wire, etc.) to secure the end of the film to the structure (typically to a horizontal purlin or other cross-member).

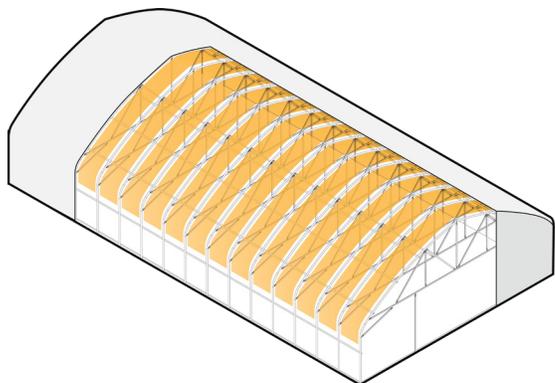
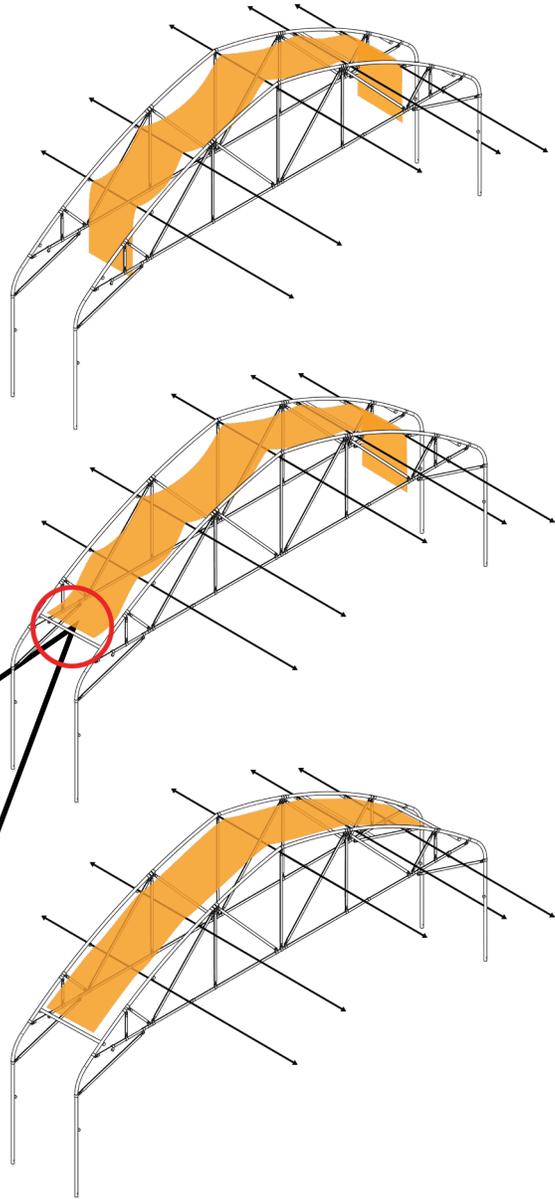


5c. Secure Other End

Repeat the steps on the other end of the greenhouse until the film is fully secured and the appropriate tension is applied to minimize sagging of the film.

5d. Repeat

Repeat for the entire greenhouse.



Installing UbiGro End-to-End

1. Measure Dimensions

1a. Measure Cable Length

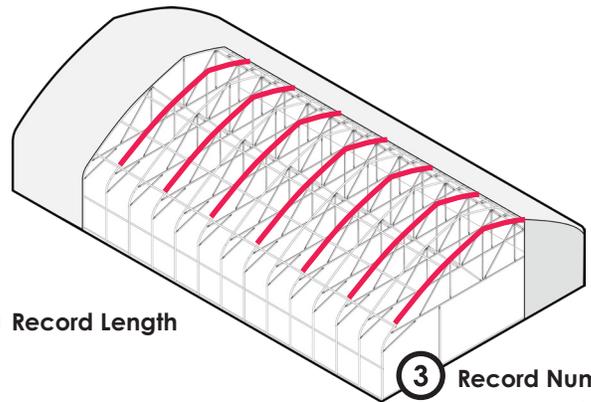
To determine the length of each cable, accurately measure along the length of each purlin, starting from one sidewall (where the cable end will be anchored) and ending at the other sidewall while following the curvature of the greenhouse.

After that dimension is measured, next you will need to calculate how many cables will need to be installed. The recommended spacing between the cables is 6-10 ft (2-3 m) which is usually every other purlin. More cables can be installed if needed (e.g., each purlin).

Your Notes

Length between cable attachment points	
Number of Cables to be Installed	
Total length of Cable Needed	

① Determine Attachment Points



② Record Length

③ Record Number recommended spacing 6-10ft

1b. Measure UbiGro Length

Determine the attachment points on either end of the greenhouse where the supporting cables will be fastened (typically the outermost purlins or 1 purlin in from either greenhouse wall).

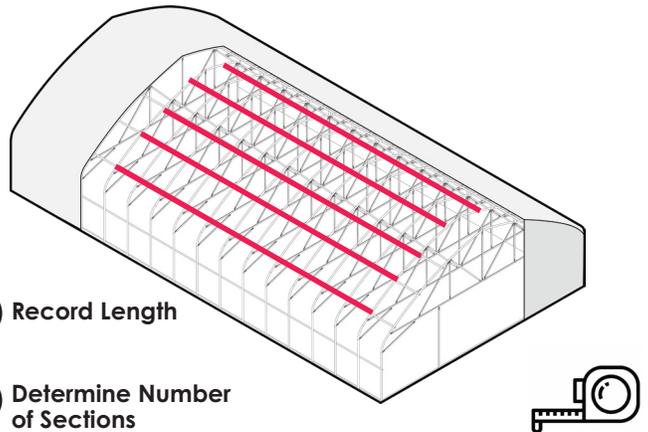
Take that measurement and subtract 6 in. (15 cm) to allow for tensioning the film when installed. Finally, determine how many sections of UbiGro will be needed. It is recommended to place each UbiGro section as close to each other as physically possible to ensure maximum coverage. In some cases, there may be small gaps between each film section (1-2 ft, 30-60 cm) depending on greenhouse architecture.

Your Notes

End-to-End Length Minus 6 in	
Total Number UbiGro Sections Needed	

① Record Length

② Determine Number of Sections

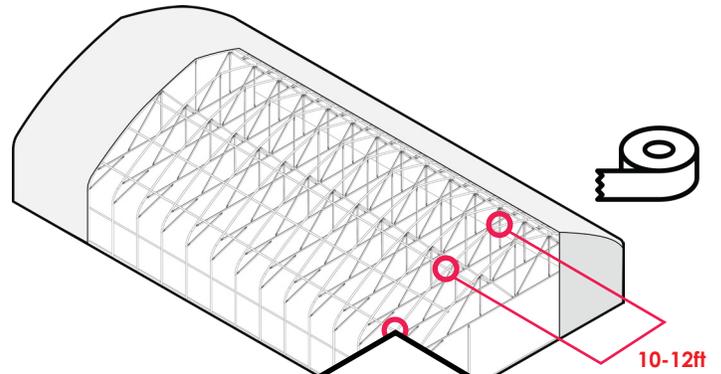


Installing UbiGro End-to-End

2. Install Clamps

2a. Determine location for rubber clamps

Using your measurements from Step 1, determine where the rubber clamps will need to be installed in your greenhouse. Recommended spacing is one clamp every other purlin or one clamp every 10-12 ft (3-4 m). We recommend marking the position of each clamp for easy reference when installing the hardware.



2b. Secure Clamp Around Purlin

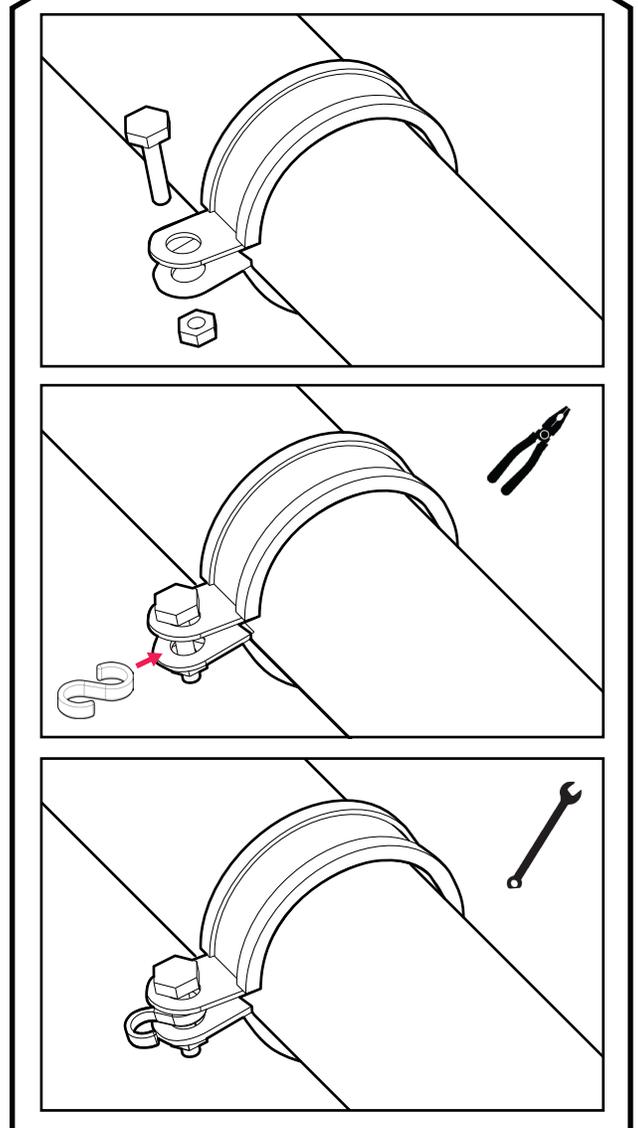
Next, place a clamp around the purlin and using a bolt and nut, partially tighten the clamp around the purlin so it will not slip.

2c. Secure S-Hook

Place an S-hook on the fastening bolt, between the clamp ends. Close the S-hook around the bolt using channel locks or pliers

2d. Tighten & Repeat

Finish tightening the bolt to secure the clamp in place. Repeat procedure for each purlin until all clamps have been installed

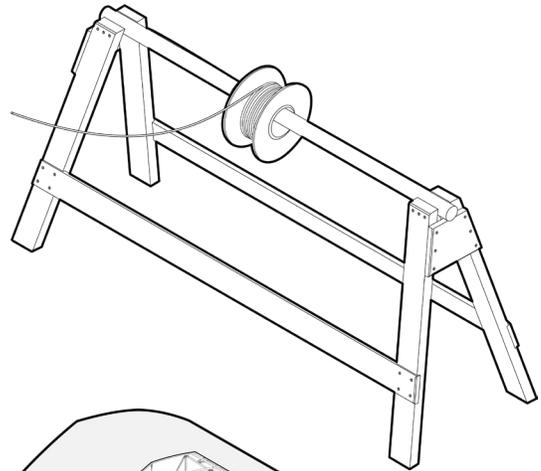


Installing UbiGro End-to-End

3. Install Cable

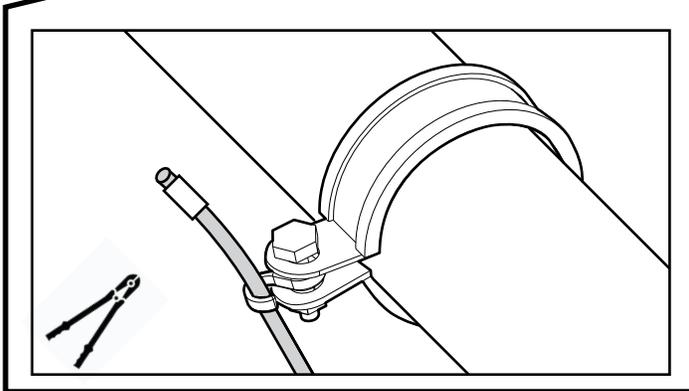
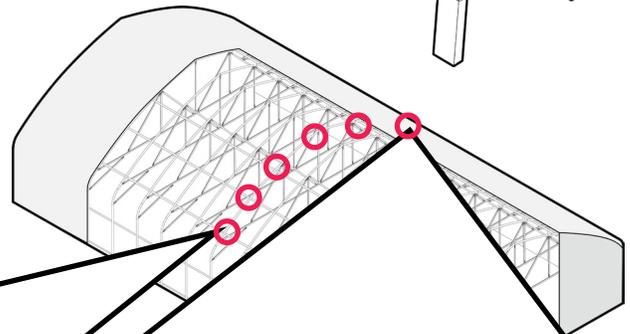
3a. Prepare Airline Cable

Once all clamp hardware has been installed, set up airline cable so it can be easily unwound (e.g. between saw-horses with a pipe)



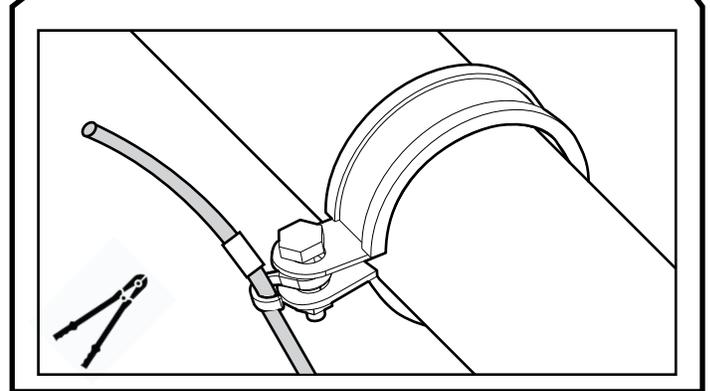
3b. Thread Cable through S-Hooks

Beginning from one end of the greenhouse, thread cable through the S-hook on each clamp and tighten S-hook around cable to prevent it slipping out. Repeat the process until the cable is secured to each clamp.



3c. Clamp Cable End

At one end, using cable cutters clamp the end of the cable with a cable stop, placed ~6 in (15 cm) from the end of the cable. Be sure not to cut all the way through the cable stop. A second stop can be installed after the first as back up if needed.



3d. Clamp Other Cable End

After cable stops are installed on the far end of the greenhouse, repeat the process on the other end by cutting the cable ~1 ft (30 cm) beyond the final clamp and while holding the cable taut, installing a cable stop as before. Repeat process for each cable installation.

Installing UbiGro End-to-End

4. Cut UbiGro

4a. Unbox UbiGro

First, open the package containing your UbiGro roll by cutting outer straps and removing the upper box. Next, remove any protective plastic or paper covering the roll. Then cut out the front face of the box so the film can be accessed and rolled out. Alternatively, a fork lift (if available) can be used to lift the film out of the box for easy access.

4b. Prepare for Unrolling

If it is available, it is recommended to set the UbiGro on a stand (e.g. sawhorses and a pole or using a forklift) to help with rolling out the film.

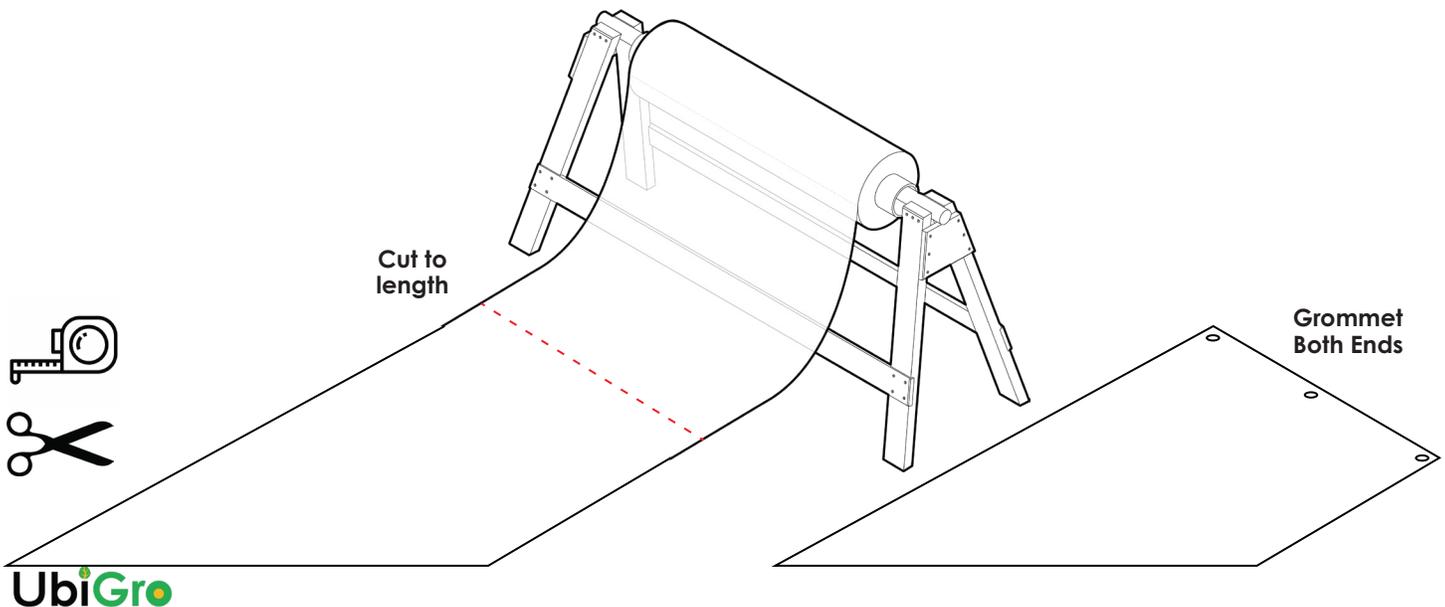
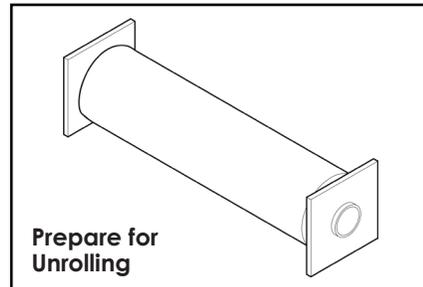
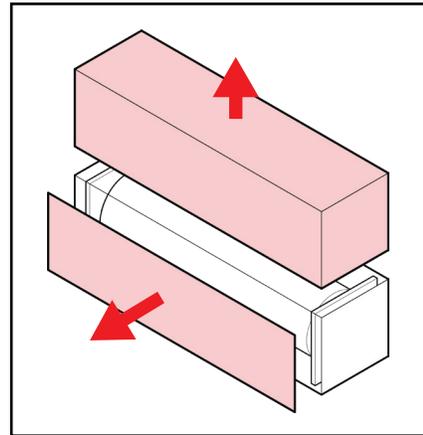
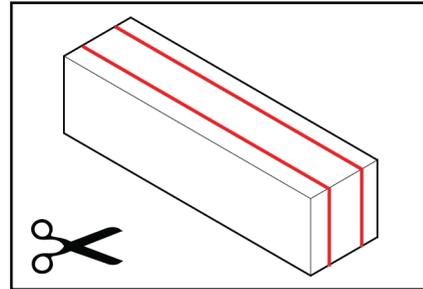
4c. Cut to Length

Using the measurements taken in Section 1b, roll out UbiGro and cut to the necessary length. Repeat for each section needed.

Alternatively, the roll of UbiGro can be placed below the section to be installed and can be cut to length directly.

4d. Grommet Both Ends

Start by installing two or three grommets (depending on fastening method) on both ends of the UbiGro section. These will serve as anchor points to secure the ends of the film.

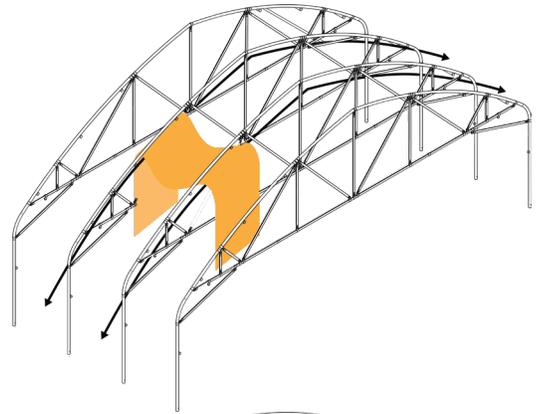


Installing UbiGro End-to-End

5. Install UbiGro

5a. Thread UbiGro over Airline Cables

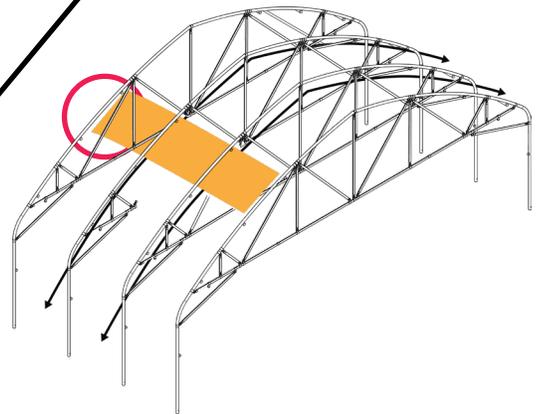
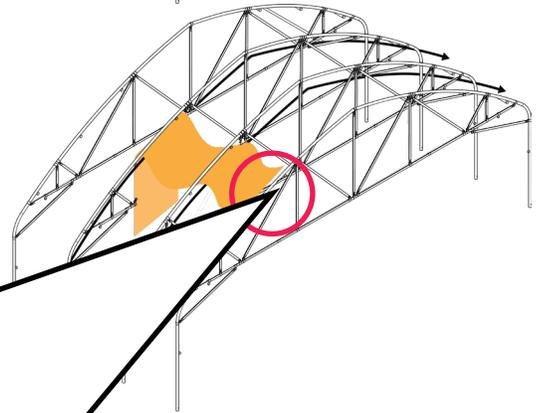
Starting from one side of the greenhouse, thread end of UbiGro (with grommets installed) above the supporting airline cables (below the greenhouse cover) until you reach the opposite side of the greenhouse.



5b. Secure One End

Next, secure one end of the UbiGro section using the pre-installed grommets.

Depending on your greenhouse construction, use your preferred fastening method (cable ties, airline cable, wire, etc.) to secure the end of the film to the structure (typically to a horizontal purlin or other cross-member).

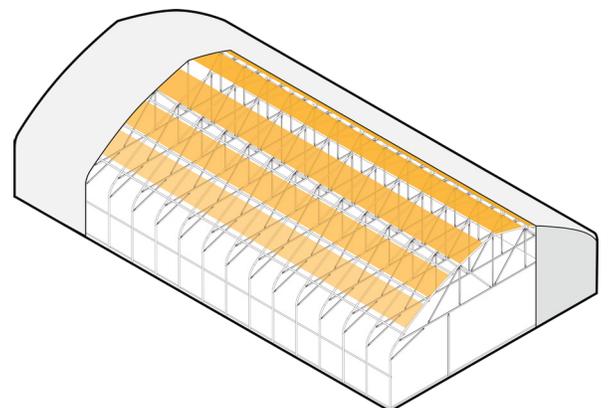


5c. Secure Other End

Repeat the steps on the other end of the greenhouse until the film is fully secured and the appropriate tension is applied to minimize sagging of the film.

5d. Repeat

Repeat for the entire greenhouse.

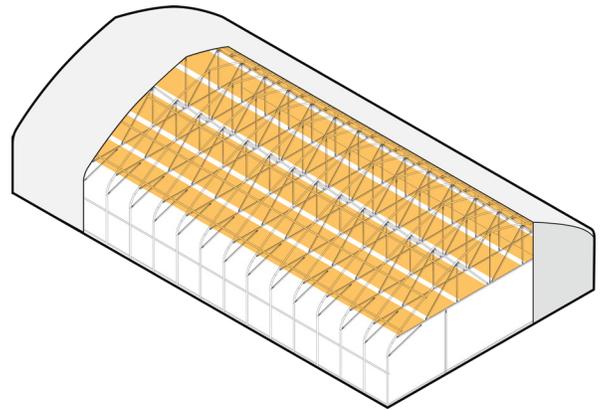


Installing UbiGro Horizontally

Flexible Installation Method

Users suspend UbiGro horizontally above crops, but not up against the greenhouse cover. If greenhouse infrastructure allows, this method requires little hardware, attaching the ends of the strips to end-purlins with grommets and cable ties or self-tapping screws.

It is recommended that UbiGro is fastened to each horizontal structural member with grommets/cable ties or self-tapping screws to ensure a flat install. It is also recommended that users leave gaps between the strips to allow vertical airflow channels. Recommended spacing is 1-2 ft (30-60 cm), depending on greenhouse construction.



Contact

Learn More

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Questions

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UbiGro is powered by UbiQD, Inc.

