

High Tunnels

Build a 12 x 50 High Tunnel

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Alaska Berries

12x50 High Tunnel



Site Preparation

- Ground worked and ready
- Keep your site level
- Irrigation needs
- Consider wind direction



Layout

- Layout and square your 12x48 grid
- Lay typar or landscape fabric



Baseboard Ends

- Cut the 2x6 baseboard ends at 15 degree angles



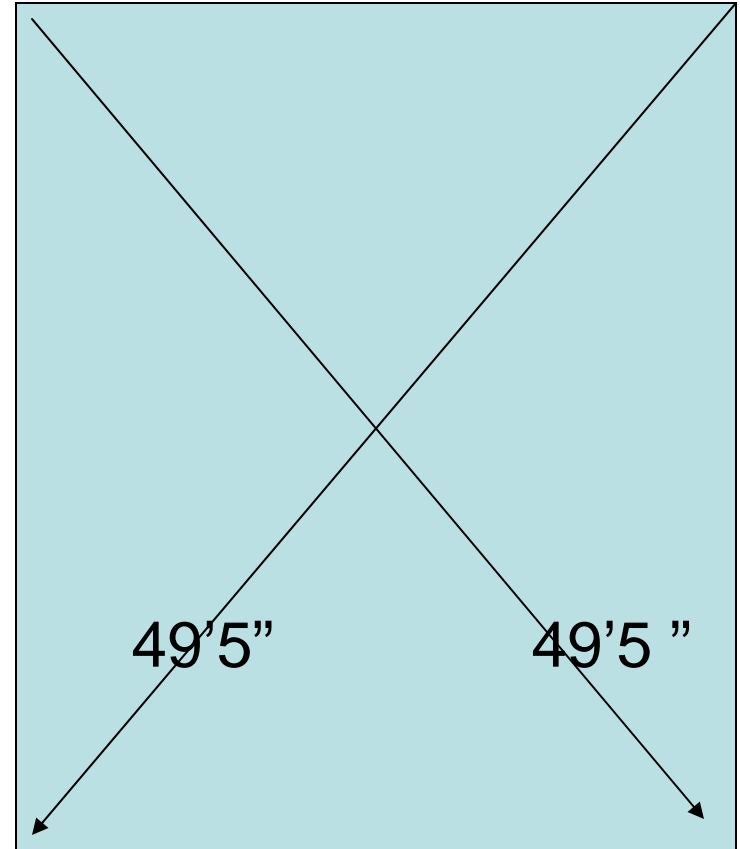
Set Baseboards

- Build and layout the baseboard frame



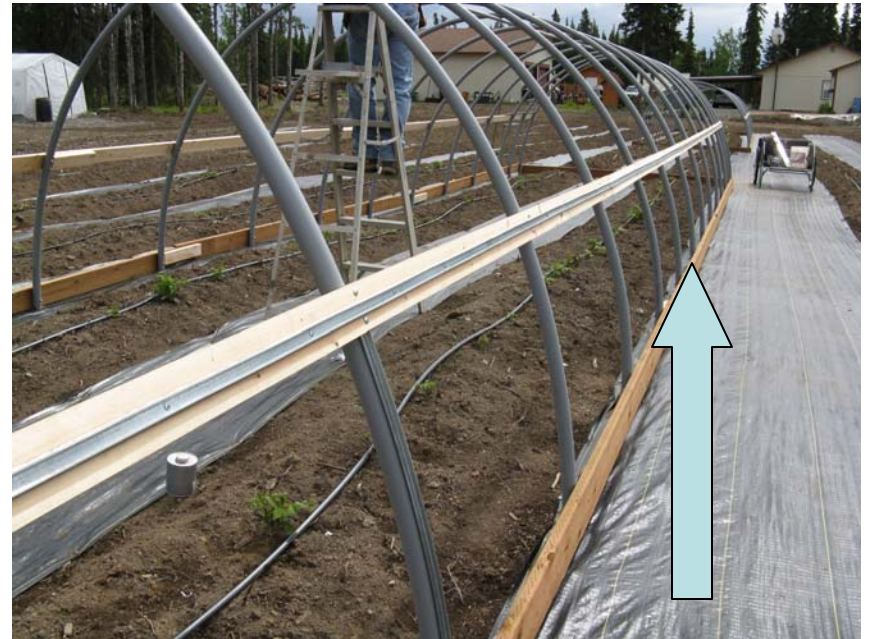
Square Frame

- After baseboard assembly, check the frame for square



Straight Sides

- Insure frame sides are straight



Ground Stakes

- Pound stakes every 4'
- Leave the top even with the 2x6
- Use 2" pipe nipple while pounding stake to prevent damage



Gluing Hoops

- Insure that each hoop is the same length

Inserting Hoops

- Insert the BELL end in first then bend PVC until you can grab the other end and guide it over the ground stake



- Do this for all 13 hoops remembering to keep all of the bell ends on the same side



Attaching baseboards

- Attach baseboard through PVC hoop and ground stake with a carriage bolt, flat washer and nyloc nut
- Do this all down one side only



- Measure up 42" from the ground and make a mark on each end
- Stretch string from end to end
- Mark each hoop where the string touches



- Attach hip board with 3" carriage bolts
- Align the top of the board to the mark
- Make sure that the board ends are flush with the end hoops



- Attach string to the top center of each end hoop
- Sight down the taut string to see which hoops need to be adjusted
- Raise or lower the hoops to make all the hoop tops just touch the string



- Make a mark where the string touches the top of each hoop
- This will give you the exact mark where you will now drill and attach the 1" purlins
- Remove the string



- Using a $\frac{1}{4}$ " bit, drill down through the top of the hoop at the mark
- Hold the 1" PVC tight to the hoop and drill through it. Exchange the bit to the $\frac{11}{32}$ " and redrill JUST the top hole
- This will allow the square portion of the carriage bolt to rest flush on the hoop





- Continue with this same procedure to the end of the high tunnel
- Make sure to keep the purlin ends flush with the hoop ends







Attaching Hipboards

- Attach the 1x4 hip boards to the hoops as you did on the other side



Attaching channel

- Attach the 6' galvanized spring lock channel to each hipboard
- Make sure the channel is centered on the hipboard
- Predill holes through the channel with a 1/8" bit spaced every 12"
- Use a 3/4" panhead fastener
- Remove any sharp edges



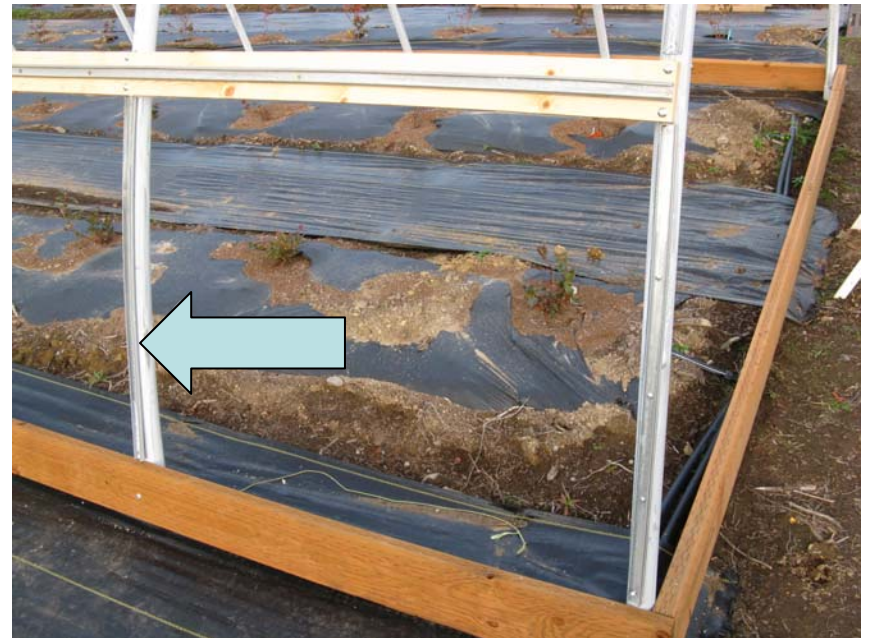
- Install spring channel to both hoop ends
- Start the top piece centered at the top of the arc
- Space screws every 8" and use squeeze clamps to help form it to the arc of the hoop



- Finish installing spring channel down the sides of the end hoops



- Install a short section of channel to the inner hoop
- This will allow you to install film to the corners





End Walls

- Frame in the end walls
- Attach 6 mil visqueen to end walls using 1x2" furring strips

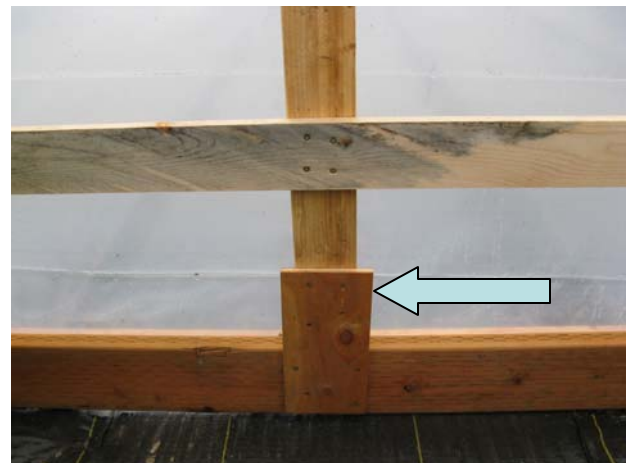


- Frame in a door opening on one end wall



Framing Endwall

- Use 2x4's for end wall framing
- Use 1/4x4" carriage bolts to attach the upper end of the 2x4 to the PVC hoop



- Space 2x4 frame on 2' centers
- Install 6 mill visqueen and use 1x2 furring strips to secure it to the frame



- Install the separate lower end covers using wiggle wire
- Caution: Wiggle wire does exactly that, it wiggles all over. Be careful; wear safety glasses
- Use heavy duty snips or bolt cutters to cut the wiggle wire



- Unroll the greenhouse film down the length of the high tunnel



- Attach one end of the greenhouse film to the end of the high tunnel using wiggle wire



- Now do the other end
- Do not overstretch the film
--- just make it snug



- Leave 6-8" film excess on each end



- Attach one side of the film to the hipboard channel using wiggle wire
- Keep this side even while you attach it



- Finish attaching the film to the other side of high tunnel
- Have your helper keep the film snug as you go along

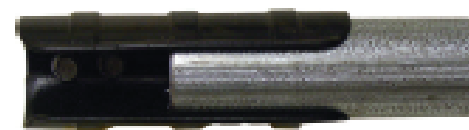


- Attach the roll up pipe:
- Glue 5 sections of 1' PVC together
- Lay the 50' of pipe next to the film; leave a foot sticking out on each end
- Attach the film to the pipe with either duct tape or film clips



Film Hoop Clips

Film Hoop Clips are excellent for clipping shade cloth and poly film for roll-up side walls.



Stock #	Description	Case	Price
BFAFLFP03	Film Hoop Clip for 1 1/4" Pipe	20	\$6.89
BFAFLFP02	Film Hoop Clip for 1" Pipe	20	6.72

Prices are subject to change without notice. Prices at time of shipment will prevail. ♦ Available Special Order Only.

F.O.B. McConkey Warehouses

- Glue two 90 degree elbows together to create a handle
- Glue handle to one end of the roll up pipe
- Attach an eye screw to the frame
- Use a bungee cord to keep the sides up



- Insert eye screw on baseboard – every other hoop
- Attach anti-billowing webbing or rope in a criss-cross pattern



Materials

Material	Dimension	Quantity	Notes
Typar (road fabric)	12'6"x50'	1	Weed Barrier
outdoor lumber	2x6x16	6	Baseboard sides
outdoor lumber	2x6x12	2	Baseboard ends
lumber	1x4x10	11	Hip boards
lumber	2x4x8	10	For framing in end walls
lumber	1x2x8	20	Furring lumber for end walls
lumber	2x6 scrap 1 foot long	4	To join the 2x6 baseboard
1 5/8 top rail	1 5/8 x 10' top rail	10	Cut into 31 1/2" ground stakes
PVC Elec conduit	1 1/2x10	26	Hoop ribs
PVC Elec conduit	1 x 10	5	Purlin
PVC Elec conduit	3/4 x 10	10	Roll up pipes

Materials

Material	Dimension	Quantity	Notes
PVC Elec conduit	$\frac{3}{4}$ " 90	4	For making roll up handles
Gal steel spring lock base	20 per case	32	Channel for wiggle wire
Wiggle wire	10 per case	32	Wiggle wire
Hoop clips	20 per case	2 cases	For sttaching film to roll up pipe
Klerks IR/AC Greenhouse film 6 mil 4 year	24x100	1	Hoop house covering
visqueen	8x50 6 mil	1	Used for covering end walls
Carriage bolts	$\frac{1}{4}$ x 4"	1 box (100)	Used to attach hoops/purlins/end walls
Carriage bolts	$\frac{1}{4}$ x 3"	1 box (100)	Used to attach hoops/purlins/end walls
Nylon lock nuts	$\frac{1}{4}$ nyloc nuts	2 box (200)	Used to attach hoops/purlins/end walls
Flat washers	$\frac{1}{4}$ " washers	2 box (200)	Used to attach hoops/purlins/end walls
Eye bolts	#4	1 pkg (25)	Used to secure anti billow strapping

Materials

Material	Dimension	Quantity	Notes
Exterior screws	1/2" or 5/8" or 3/4"	200	For attaching wiggle wire channel to hip boards
Exterior screws	3"	50	For attaching baseboards
Polypropelene rope	Either 1/2-1"x300	1 roll	Antibillowing strapping
Or flat batten strap	2 1/2" x 300'	1 roll	Antibillowing strapping
Bungee cords	12" – 18"	2	Used to hold roll up handles
PVC Door Handle	3/4" pvc	2'	Used for door handle
PVC Door Handle	3/4" T	2	Used for door handle
PVC Door Handle	3/4" 90	2	Used for door handle
PVC Glue	gray	1 16 oz can	Used to glue PVC pipe together
PVC Glue	clear	Small can	Used to glue pvc handle
Eye bolts	#4	1 pkg (25)	Used to secure anti billow strapping

Material List

- 12'6"x50' Typar (road fabric)
- 6ea 2x6x16 outdoor lumber
- 2 ea 2x6x12 outdoor lumber
- 10 2x4x8
- 11 ea 1x4x10
- 24 1x2x8 furring strips
- 4 pcs scrap 2x6 (each 1' long)
- 10 ea 10' chain link toprail
- These will need to be cut into 4 pieces 31.5" long for anchor stakes
- 26 ea 1 ½" pvc elec conduit
- 5 ea 1" pvc elec conduit
- 10 ea ¾" pvc elec conduit
- 4 ea ¾" pvc 90's
- 32 gal steel spring lock base (comes 20 per case)
- 32 plastic coated steel spring wire (comes in bundles of 10)
- 2 cases (20 per case) Film hoop clips
- 24'x100' Klerks IR/AC 6mil 4year film
- 1 box 8'6"x50" visqueen (SBS)
- 1 box (box =100 pcs) 1/4x4" carriage bolts
- 1 box 1/4x3" carriage bolts
- 1 box ¼" nylon insert locknuts
- 1 box ¼" flat washers
- 1 pkg (25) #4 eyebolts
- 200 ½ or ¾" exterior screws
- 50 ea 3" exterior screws
- 300' ½ or ¾" polyrope
- Or 2 ¾"x300' webbing
- 2 ea 12"-18" bungee cords
- PVC door handle
- 2' ¾" pvc
- 2 ¾" T's
- 2 ¾" 90's
- 1 16oz can of Oateys pvc cement

Tools

- 2" nipple 4" long
- 2" end cap
- Sledgehammer
- 100' tape
- 50' carpenter string
- 12 or 25' tape measure
- Cordless Drill 18v
- Phillips bit inserts for driver
- 3/8" ratchet
- 7/16" deep socket
- Pliers or channel locks
- Hammer
- Sharpie marking pen
- 4' level
- 6' ladder
- Utility knife
- Saw horses
- Extension cords
- Power saw
- Hack saw or Metal chop saw
- Flat file
- 1/8" bit
- 1/4" bit
- 11/32" bit
- 1 1/8 forstener bit
- Bolt cutters or Metal snips

LINKS

- McConkey Co
- <http://www.mcconkeyco.com/>
- FarmTec
- <http://www.farmtek.com/farm/supplies/home>
- <http://www.hightunnels.org/>

Happy Farming!

