



# How to: Collapsible Produce Washing Station

*A NIFA grant funded project*

*Designed by the Fruit and Vegetable Working Group of the Value Chains Partnerships project  
and the Leopold Center for Sustainable Agriculture*

*Redesigned and manual built by Sarah Joy Greer*



# How to: Collapsible Produce Washing Station

## Hardware Shopping List

See last page for detailed shopping list

- Box of 3" deck screws
- Box of 1-5/8" deck screws
- **(8) 4" Heavy Duty Tee-Hinge**
- (2) 4" Door Hinge
- (1) 4-1/2" Latch Post Safety Hasp
- (16) #20 - 1/4" Jam Nut
- (16) 1/4" - 3/4" Hex Nut
- **(8) 2-1/2" Hook and Eye**
- (4) 2x4 Hangers
- (2) 2" PVC Sink Drainer
- (2) 2"PVC Pipe - 6" long
- (2) Handles

If making the station fully collapsible, these bolded items are needed.

## Lumber Shopping List

See last page for detailed lumber shopping list

- (2) 2x4x8
- (1) 2x4x10
- (1) 2x6x12

## Tools Required

- Drill and drill bits
- Jigsaw or circular saw
- Lever
- Measuring Tape
- Sandpaper

## Time Required

Shopping Time = 1.5 hour + drive time

Assembly time = 2 hours

## Brief Overview

Part One: Building the Base

Step 1: Attach the hangers

Step 2: Assemble Base

Step 3: Assemble and attach collapsible legs

Step 4: Add hook and eyes

Part Two: Assembling and Finishing the Produce Station

Step 1: Mark the center of the barrel.

Step 2: Using a drill bit, create an opening in the barrel.

Step 3: Cut the barrel in half

Step 4: Attach your barrel to the bases

Step 5: Connect the barrels

Step 6: Assemble the drains

Detailed Lumber Shopping List and Cuts

Detailed Hardware Shopping List

## Blue Barrel

Blue or white barrels like the one on this guide can frequently be purchased from classifieds such as Craigslist

## An Important Note for Using This Guide

In order to simplify this project, this guide will be broken into two major parts: "Building the Base" and "Assembling and Finishing the Produce Station." "Building the Base" only outlines the building of one base. It must be repeated in order to build the two bases.

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Piece	Quantity	Size	Length (inches)
A	8	2x4	20
B*	4	2x4	15
C	2	2x4	36
D	4	2x6	36



Pieces from L-R A, B, C, D

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## Part One: Building the Base

Repeat this entire Part One section in order to build the entire base

### Step 1: Attach the hangers

Make a vertical mark in the center of *Piece B*. Line up the center of the *2x4 hanger* with the mark and make sure the bottom is flush with the bottom of the wood (See Figure 1). Using four *1-5/8" screws*, secure the hanger into place. Repeat with the other *Piece B*.



Figure 1 Screw the 2x4 hanger to piece B

### Step 2: Assemble Base

Collect your 2 *Piece Bs* with the attached hangers and 2 *Piece Ds*. Using a flat surface, such as a garage floor or a table, lay *Piece B* with the bottom of the hanger touching the flat surface. These pieces should be facing each other about 36" apart. *Piece D* will fit inside this space. See *Figure 2* for proper alignment.

Using the *3" screws*, secure the 2 *Piece Bs* to the 2 *Piece Ds*, forming a rectangle seen in *Figure 3*.



Figure 2 Piece B will sit on the outside of Piece D



Figure 3 The assembled base

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If you wish to add collapsible legs to your station continue to Step 3 right now.

If you want to put on permanent legs secure *Piece A* to the rectangular base with 3” screws at this time and proceed to “Part Two: Assembling and Finishing the Produce Station.”

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## Step 3: Assemble and attach collapsible legs

Line up 4 *Piece As* on a flat surface and place one *heavy duty T-hinge* on the edge of each one. The placement of the T-hinge is vital to the construction and stability of the entire sink so pay close attention to the look of *Figure 5* to visualize the placement of the hinge. Attach *T-hinge* to *Piece A* using the *1-5/8" screws*. Be careful to make sure that the hinge is in the same position after fastening it down. The screws can sometimes shift the hinge out of place.



*Figure 4* Lined up legs with hinges.  
on the hinge



*Figure 5* Note the location of the bolt

Flip the base upside down and situate the hinge and leg so it mimics *Figure 6*. Secure the rectangular piece to the underside of *Piece B*. Secure the leg to the base using *1-5/8" screws*. Repeat in each corner of the base.



*Figure 6* Note the location of the leg and hinge.



*Figure 7* The finished base

Once all four legs are secured, flip the base again and pull the legs out to test for stability. *Figure 7* shows the finished base.

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## Step 4: Add hook and eyes

Adding hook and eyes allows for the legs to be locked into place. This adds additional stability to the structure. The hook and eyes allow for the base to fully collapsible yet be sturdy.

Begin installation by drilling a small hole into *Piece B* centered above *Piece A - the leg* - about an inch above its edge. The hole should only be a couple rotations deep. This is just serving as a starting point for the hook's screw. See *Figure 8*.



*Figure 8 Create starting hole with a small drill bit.*

The *hook* can now be installed. Place the screw into the beginning hole. If you twist the *hook* as it is done in *Figure 9*, you can use the leverage to screw the hook into place easily.



*Figure 9 Install hook into Piece B install eye*



*Figure 10 Use the hook to find where to*

Use the hook, to find where the eye needs to be installed. Again, make a beginning hole for the eye. Using a pencil or an extra screw, twist the eye into place and test the security of the hook and eye. Repeat for each leg.

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Figure 11 Screw the eye into the leg. a secure leg.



Figure 12 Make certain the hook and eye fit and create

### **Remember: An Important Note for Using This Guide**

“Building the Base” only outlines the building of one base. It must be repeated to create both bases.



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# Part Two: Assembling and Finishing the Produce Station

### Step 1: Mark the center of the barrel.

In order to make the straightest cut possible, a continuous mark around the barrel will help guide your blade. Oftentimes, the barrel already has a line around it, but there may be nozzles in the way that will be difficult to cut through. See *Figure 13* below to visualize this.



Figure 13 Our mark avoids cutting through openings in the barrel.

### Step 2: Using a drill bit, create an opening in the barrel.

When using a jigsaw, a starting point needs to be created to avoid bending or damaging a blade. Using a drill bit that is larger than your blade, make a hole along the mark of your barrel.



Figure 14 A starting point can be created with a drill bit.

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### Step 3: Cut the barrel in half

Using your saw of choice - jig saw or circular saw - beginning at the hole made by the drill bit, cut the barrel in half. Some parts of the barrel are made with thicker plastic, so try not to force the saw through too quickly as this could damage the blade. Making one continuous cut by sawing through edges allows for only one drill hole to be made. **Depending on what your barrel once held, it may need to be sprayed out before continuing.**



Figures 15 and 16 Cut the barrel in half

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### Step 4: Attach your barrel to the bases

This step can only be done once both bases are built and sturdy. Pressure will be applied to the base so make sure that the legs are locked into place. Insert Piece C into the 2x4 hangers of each base. This is where you will secure your barrel.

Align your first barrel so your flattest edge (ie no nozzles) is flushed with the edge of the base. There will still be room on the other edge and that is ok. This is represented in Figure 17.

Make sure your barrel half is centered on *Piece C*. This can be done using a level or a bare eye. With 1-5/8" screws, secure the barrel half into place on *Piece C* (as seen in *Figure 18*) This can now be removed and checked for accuracy.



Figure 17 the barrel with it's flat edge is flush with one side of base. Figure 18 Level the barrel on the base and secure into place

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## Step 5: Connect the barrels

If small, gradual cuts in the barrels need to be made so that they are equal height, this should be done now. The nuts and bolts will be used here - screws would not hold the hinges to the thin plastic.

Beginning with one barrel and base, place a 4" door hinge on the flat side of the barrel that is flush with the base. . Mark the holes with a writing utensil such as a marker and remove the hinge. Repeat on the other half flat side of the barrel (See in *Figure 19*). A small drill bit (around 1/4") can be used to make holes in the marks.

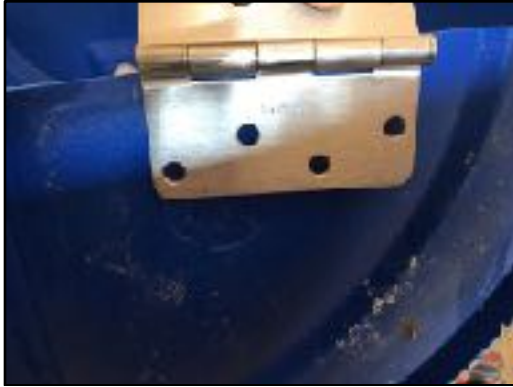


Figure 19 Use the door hinge to mark holes



Figure 20 Use a drill bit to make holes

on marks.

Align the 4" door hinge with the holes made and use nuts and bolts to hold the hinge in place. Do not tighten completely as this will be done in a later step.



Figure 21 Secure 4"inch door hinge into place with nuts and bolts

In order to properly connect the two halves of the barrels, the second half must be placed on top of the first as seen in *Figure 22*. Flip the hinge up and mark the holes as done previously for each hinge.

The barrel on top can now be flipped and secured into its base. Using the 1/4" drill bit again, make holes according to your marks.

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Figure 22 The barrel can be placed onto of the first to mark the drill holes properly.

The next step will not be exactly pretty and may require a little bit of elbow grease. Butt the second barrel and its base up to the first barrel and base. Line up the door hinge and secure into place with nuts and bolts tightened with your fingers. The plastic may not fit together perfectly, like in *Figure 23*, so it may be hard to get the bolt on - - **this is ok. It will be fixed with tightening.**

Using a wrench, as seen in *Figure 24*, tighten all nuts and bolts as tight as you can. This will situate the plastic better and make a better fit.

At this point you can flip one side of the barrel onto the other and make sure it works properly.



Figure 23 Bolt in hinges to both halves of the barrel.



Figure 24 Tighten all nuts and bolts.

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## Step 6: Add Safety Hasp

Now that barrels are hinged together, the hasp that will lock the barrels together can be added. This will allow you to close the barrel for transport as well as store needed items in transit.

Close the barrel. Place the hasp onto the barrel and make sure that the hasp doesn't hit your starting hole if it is on that side. Use the small part to mark holes to be drilled through with a 1/4" drill bit.



Figure 25 Line up hinge to make sure it fits.



Figure 26 Mark and make holes for the small part of hasp.

Secure the piece into place using your *machine nuts and bolts*. The small heads of these bolts allow for the clearance of the hasp. Line up the second piece by inserting into the first piece. Mark these holes and drill them out. Secure this piece into place as well.



Figure 27 Secure the smallest piece with nuts and bolts



Figure 28 Mark holes for the second piece.

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## Step 7: Assemble the drains

A two inch drill bit runs \$25-30 and since there are only two cuts, this is not a very efficient purchase. If you have the bit already, use it in this step.

Line up the drain cap on either side of the wooden support. Make sure that the PVC that will be on the outside will clear the post where ever the drain is placed. Mark the outside ring of the cap. Using the largest bit you have, drill out the center of the mark.



Figure 29 Mark the position of the cap.



Figure 30 Drill the center of the mark out with a drill bit.

Cut the remainder of the hole with a jig saw. Place the cap into the hole and adjust cut to make it a correct fit.



Figure 31 Cut the remainder of the hole with a jig saw



Figure 32 Fit the drain into place.

If the hardware store was not able to cut the PVC pipe, it can be done at home with a small hack saw. Mark out 4" of the 2" pipe. Cut through the pipe with the hacksaw and sand the uneven edges. These pieces can then be attached to the drain on the other side of the barrel.

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Figure 33 Mark 4" of the pipe.



Figure 34 Cut the pip with a hacksaw.

### Step 8: Add Handles (optional)

Handles may make it easier to tote this structure around. Handles can be added to both undersides of the barrels on *Piece C*.

Using a drill bit, make holes in the wood to match the holes made in the handles. This ensures that the thin wood will not be split. This handle was placed in the center of *Piece C* but can be added wherever you desire.

Handles can also be added to the collapsed base.



Figure 28 Make holes for the screws of the handle



Figure 29 Secure handle into place.



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# Detailed Lumber Shopping List and Cuts

Lumber can be cut where it is typically purchased. Some hardware stores charge after a specified number of cuts. The number of cuts required for this project is 14.

Piece	Quantity	Size	Length (inches)
A	8	2x4	20
B*	4	2x4	15
C	2	2x4	36
D	4	2x6	36

**2x4x8 (2)** –\$3.49 ea.

A 20"	A 20"	A 20"	A 20"	B* 15"/ left over
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A 20"	A 20"	A 20"	A 20"	B* 15"/ left over
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**2x4x10 (1)** - \$4.89 ea.

B* Match 15"	B* Match 15"	C 36"	C 36"	Extra 18 inches
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**2x6x12 (1)** – 9.05 ea.

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D 36"	D 36"	D 36"	D 36"
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*B\* - The remnant of the 2x4x8 boards after the (3) 20" cuts will be around 15". To avoid a fraction of an inch cut, match this length on the 2x4x10 cuts.*






Figure 8 Pieces from L-R - A, B, C, D

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## Detailed Hardware Shopping List

 <p>Box of 3" Screws Department: Hardware Price: \$6.47</p>	 <p>Box of 1-5/8" Screws Department: Hardware Price: ???</p>	 <p>(8) 4" Heavy Duty Tee Hinge Department: Hardware Price: \$3.67ea.</p>
 <p>(2) 4" Door Hinge Department: Hardware Price\$2.98ea.</p>	 <p>4-1/2" Latch Post Safety Hasp Department: Hardware Price:\$6.58</p>	 <p>(16) #20 - 1/4" Jam Nut Department: Hardware Price: \$0.15 ea.</p>
 <p>(16) 1/4" - 3/4" Hex Bolt Department: Hardware Price: \$0.11ea.</p>	 <p>(8) 2-1/2" Hook and Eye Department: Hardware Price: \$8.98</p>	 <p>(4) 2x4 Hangers Department: Deck Building Price: \$0.67</p>

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 <p><b>2" PVC Drain</b> Department: PVC/Plumbing Price: \$2.00ea.</p>	 <p><b>2ft 2" PVC Pipe - cut into (2) 4" pieces</b> Department: PVC/Plumbing Price: \$5.11.</p>	 <p><b>1" machine screws</b> Department: Hardware Price: \$1.19</p>
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**Bolded items for completely collapsible station.**