

# HOW TO MAKE A BIOCHAR OVEN

*Smoke kills. Smoke impoverishes.*

*Smoke is not a fact of nature. Smoke is our own doing.*

*If we make it, we can end it.*

*This graphic teaches you how to build the simplest, least expensive smoke stopping machine. It is ugly but 100% effective.*

*In a second graphic, Biochar and You: Sustainability with Profit, we teach you how to use the biochar you make with this machine as fertilizer, animal feed enhancer and stink stopper.*

## 1 CHEAP, EASY, DO-IT-YOURSELF



**Tools:** Drill, drill bits, pliers, string, marker

**Materials from recycling:** barrel, 2 sheets of roofing metal, 2 m 1" steel box,

**Materials from the store:** 12 self-tapping screws, 1/2". Total cost, 500 THB.

## 2 MARK OUT AND DRILL HOLES



Use string and marker to mark the half and quarter and eighth circumference points. Draw lines to connect them. Mark the intersections with Xs.



Use the drill with the 1/8" drill bit to drill set holes at every X. Follow up by re-drilling all holes with a 1/2" bit.

## 3 MAKE STACK

Cut 2 sheets of roofing to 1 meter in length. Connect with 4 screws to make tube that is 1 meter long and 45-55 cm in diameter. Set aside.



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## 4 CUT 8-POINT STAR, BEND OUT

Mark two center lines on the top of the barrel . Drill a small hole at the center. Measure around your stack with string. Fold the length into 3. Half that length. Put a nail in the center hole. Hook one end of the folded string on it and draw a circle. Divide circle into 8 slices. Cut across the circle along the lines of the slices. Using plyers, bend the slices up.



## 5 CUT TOP OFF BARREL

Encircle the barrel with string. Snug it tight 1" below the rim of the end cut with the star. Use the marker to draw a line around the barrel. Cut along the line to remove the top. Set aside with the stack.



## 6 CUT SPACERS

Measure two 1 meter lengths of 1 x 1 steel box. Cut and set aside.



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(continued)

## 7 ATTACH STACK

Put the spacers across the top of the barrel . Place the star cut top on them. Push the stack over the points of the star. Re-bend the star until the stack meets top. Attach with 8 screws.



## 8 SET BARREL ON 3 STONES

To provide a little air, set the barrel on three stones or bricks. Make sure it is even and stable.



## 9 FILL WITH FEED STOCK

This step depends on what you have. Stuff like corn cob is easy. Stuff like corn stalk takes breaking and packing.





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## 10 LIGHT, PUT ON TOP, BURN

Cover the feed stock with very dry leaves. Light from all sides. Make sure that the entire surface is burning. Put on the top.

When drops of water tossed on the lowest part of the barrel turn to steam instantly, you are done!. Quench!



## 11 QUENCH AND EMPTY

Lift the top off using the spacers. Pour LOTS of water into the barrel. Empty it on the ground and if it is even steaming, pour on more water!



## 12 CLEAN!

When you are done, take 5 minutes to spray your barrel clean. If you do not, it will rust out. If you do, it will last for years.



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Warm Heart Foundation is a community development organization serving rural North Thailand. Warm Heart is a leader in the design of low-tech biochar technology for small farmers and in biochar-based sustainable agriculture.



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