



# Smoke into Biochar



## Safe Low Emissions Burn Practices using Biochar Techniques

### What is Biochar?

Biochar is charcoal that can be added to soil or compost. It helps retain moisture and nutrients, as well as promoting beneficial microbes in soil. Biochar can be expensive to buy, but you can make your own biochar and have a cleaner, safer fire as well. When done correctly, the top down burn method has almost no smoke.

### KEEP SMOKE OUT OF THE ATMOSPHERE / CARBON STAYS IN THE BIOCHAR

#### FIVE BASIC RULES:

These principles will also ensure that your fire is as smoke-free as possible:

1. Use dry wood.
2. Separate small brush from thicker logs (greater than 4" diameter).
3. Make piles loose with good airflow and no dirt. 4-6 feet in diameter and 4 to 6 feet tall.
4. Light the piles on the top.
5. Water hose to quench the fire and save the charcoal

#### Basic Procedure for Making Biochar in Burn Piles

1. Separate small brush/branches from larger wood and recover pieces above 4" for use as firewood or burn in a separate pile. Make piles 4-6 feet in diameter and 4-6 feet tall.
2. **Burn Dry Material** (2 inches in diameter: dry 30 days /2-6 inches in diameter: dry 60 days)
3. Obtain burn permit, check wind conditions, Clear around burn pile.
4. **Safety First** – Water source ready, hand tools, rakes, shovels, leather gloves, jeans, long sleeves.
5. Use small quick-light tinder to top the pile and light the top of the pile.
6. If done correctly the pile will light quickly and be blazing very soon. You will find that the top-down method of burning is much faster than other methods.
7. Be careful around the flames. They put out a lot of heat but the flames burn up all the smoke, so your burn pile is clean and won't annoy your neighbors with smoke.
8. When the pile has collapsed into a bed of glowing coals, put it out with water.
9. Make sure the coals are completely out by spreading them thin to cool and adding more water as needed.
10. When it is completely out (best to wait several days) biochar can be mixed into soil or composts as well as chicken coops or barns to absorb odors.



## Open Pile or Kiln?

The Biochar method can be achieved with or without a kiln. This procedure can work with bigger material as well, even hard to burn material like old clean lumber and bigger logs. Logs between 3 and 6 inches thick and bigger can be burned based on the size of your pile or kiln. It is important to note that the top down burning and dry material are the two most important components. While the open pile top down burn is very effective, it is more dangerous, needs a bigger safety clearance and significantly more water to quench. For some it may be the only choice as a kiln may not be available. A kiln is basically a large barrel or metal box. It is possible to make a decent one at home with some fire safe material. A good size hole in the ground ringed with large rocks will help reduce air from the bottom and sides. Fire on the top of the pile is essential for the low emission smoke free burn. Make sure there is air space between the pieces, material is dry, and no dirt or wet leaves. Top down burn and put it out with water; there will be a lot of steam. Using a sealed bottom kiln is the most effective for extinguishing the fire because it holds water. Most solid bottom kilns have a drain. Metal ring kilns usually have a lid or dirt is used to cap the burn after water has been added. Open pile burns require more water to fully extinguish and will need to be spread until they are completely out.

Keep everything in the hot part of the fire and you will not see smoke.

## Biochar Kiln Program

Residents of Butte county can reach out to the Butte County Fire Safe Council to see if there are kilns available for use on private property as a part of our Biochar Demo Project. Based on availability of Kilns and certain criteria the BCFSC may be able to assist you with you burn. Please call for info

530-877-0984 or [www.buttefiresafe.net](http://www.buttefiresafe.net)



## Additional Biochar Info



**For More Information about Biochar:**

[www.wilsonbiochar.com](http://www.wilsonbiochar.com)

or contact Kelpie Wilson: [kelpiew@gmail.com](mailto:kelpiew@gmail.com)

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