CONSERVATION BURN STEP-BY-STEP
(Slides and photos courtesy of Raymond Baltar, Sonoma Biochar Initiative)

Step I: Choose a dedicated burn location. If you use compost create burn location in reasonable proximity so it is easier to blend the biochar product with the compost.

Step II: Assemble piles with room for air flow (roughly 10x10x7). No dirt or large clots in roots.

The pile can include wire/trellising, which can be removed after (*NO posts or plastic*).

Step III: Leave the pile to season for 3-6 months. Cover with heavy plastic sheeting if rain is expected, and uncover again if sunny days follow before burn day.

Purchase a pin-type or digital wood moisture meter ($20-$50) to determine when the pile is at 20% or less moisture. This low moisture maximizes smoke and pollution reduction and shortens burn time.

Step IV: Assemble equipment and tools. Ensure you have an Air District burn permit and check with fire officials the day before/morning of the burn.

Assemble all equipment and tools needed, and make sure your crew has the proper clothing.

Tool and equipment list:

- Metal Fire Rakes with 60" Wood Handle
- McLeods with 48" Handle
- Propane Torch With Push Button Igniter or
- Propane Torch Kit / Weed burner and Portable Propane Tank & propane
- Wood moisture meter
- Dry material such as canes or tumble weeds as accelerant

Recommended Clothing:

- Welding or heavy duty gloves
- Heavy duty boots
- Fire resistant clothing — Nomex or at a minimum 100% cotton clothing
- Goggles
- Facial heat shield or hard hat

Step V: "Fluff" up piles slightly the day before or the morning of the burn. It is important to aerate any particularly dense areas of the pile. Put kindling/dry material on top in a "bird's nest" formation.

"Fluff" up piles slightly on the day of the burn or the day before. It is important to aerate any super dense areas of the pile. Shake out any dirt (especially in roots) as this will increase smoke.

How does it work?

When a pile is lit from the top a draft is created from the bottom of the pile, forcing much of the smoke that is created from the partially combusted material below the flame front to be more cleanly combusted as it passes through the flame.

Top-lit Conservation Burn

Step VI: Light from the TOP. If it is windy light from the DOWNWIND side (with special attention to safety).

Use as little accelerant as possible.

Constantly monitor burn and push any unburned or partially burned pieces into the center.

Step VII: End the burn with water when most material has burned, the whole pile is covered in white ash, and there are no flames or red coals present.

Once the pile gets to a certain point—and this is more art than science—there will be diminishing returns on carbon/biochar savings, and more ash will be created. So this is a judgment call that experience will help you make over time.

Have your crew pull the pile outward with rakes and McLeods while the hose person and helper douse any flames and keep the embers cool enough to walk on. Safety is critical.

Continue to pull all of the unburned and torrefied pieces out of the pile.

It is important to keep the hose up off the coals at all times!

Step VIII: Remove any wire and stack for recycling. When completely cooled, gather up the biochar, move to a hard surface, and process the biochar into smaller pieces (roughly 1/4" minus) using a loader bucket, pull-behind construction roller, or similar equipment. Make sure no gas, oil, or other material contaminates the biochar.

Processing Biochar

Process the biochar into smaller pieces. ¼" minus is good. Powdered carbon is good for some applications but safe handling is critical.

- Pavement Roller
- Trucks
- Tractors
- Excavators
- Rototillers
- Billy Goat Blower
- Compost Screens

Step IX: Blend biochar with compost and let it cure for as long as possible before application. You may need to purchase supplemental biochar to achieve recommended application rates, depending on where it will be used.