With Biochar added to your soil:

- Soil carbon increases between 32-33% and lasts for hundred of years.
- Biochar enhances nutrient retention in the soil:
  nitrate nitrogen + 45-54%,
  organic N + 48-110%,
  inorganic phosphorous + 29%.
- Biochar increases nutrient density of plants: an increase in Potassium, Iron, Magnesium, and Zinc.
- Moisture retention increases 10-25%.
- Biological enzymes increase by 24-28%.
- Vegetable productivity increases by an average of 28.6%
- Legume crops, such as peas, beans, and vetch, increase productivity by an average of 30.3% with biochar.[1]
- Reduces soil off-gassing of greenhouse gases by 80%

[1]Northwest Natural Resource Group www.nnrg.org

Mix 10% biochar with compost or mulch to activate and retain the nutrients in the soil, particularly in the top 6 inches where decomposition first occurs.

Barreca Vineyards
2109 Hwy 25 South
Kettle Falls, WA 99141

www.BarrecaVineyards.com
(509) 680-6357

What is Biochar

This booklet explains what Biochar is, how it is made and how to use it.

For more information and direct orders go to
www.BarrecaVineyards.com.

What is Biochar

Biochar is basically just charcoal. It is not charcoal briquettes people use in barbeques that have additives to bind them together and make them ignite easily. It is not charcoal made for filters. It is not activated charcoal that is made from bones and other materials and treated to make it more porous for medicinal purposes. Biochar is made from wood. Both hard and soft wood work well. The resinous parts of the wood are burned off until almost pure carbon remains. Then the fire is extinguished to leave porous pieces of charcoal.

This agricultural charcoal absorbs water easily but does not dry out. Once incorporated in the soil it lasts for hundreds of years. A part of its effect is to sequester carbon in the soil and out of the air. As such it does reduce greenhouse gases. But much more carbon is stabilized in rich living soil and biochar promotes building that soil.

It builds soil mainly through its water-absorbing properties. Somewhat like vermiculite, it makes the water available to plant roots but also to microbes. Acting like a hotel for healthy bacteria and fungi, its small pores keep larger microbes such as protozoa from eating the smaller ones. Once inside the biochar, they have water to move in and structure to keep from being washed away. So they are always ready to digest whatever nutrients are available and keep the life cycles intact.

How Biochar is Made

There are many ways to make biochar and different sources of material. Scrap wood from slash piles, orchard wood and sawmill waste are used to make Barreca's Biochar. Other sources can be straw and sawdust. These finer materials need more expensive continuous feed machinery to prevent them from turning into ash.

Out method uses a large metal box that can be sealed off when the fire is extinguished. Because larger pieces of wood can have a smaller ratio of surface to volume, we shred the charcoal into finer material around 1/4 inch.

Since the high temperatures of the burn make the resulting biochar sterile, we inoculate the biochar with aerated compost tea. This process incorporates billions of bacteria and fungi into the resulting product making it ready to regenerate the soil. A healthy soil is a system of synergetic relationships between a large variety of bacteria, fungi, nematodes, protozoa, insects, other microbes and plant roots. The plants feed sugars to the soil and absorb nutrients that are made available through living organisms.