Poggio Torselli
Tuscany (Italy)

**Experiment Goals**
To assess in a long-term perspective the effectiveness of the biochar soil amendment in an olive grove, in terms of:
• soil carbon sequestration and soil fertility;
• increasing soil water retention;
• olive grove productivity.

**Duration of the Experiment**
Started on 2019 - ongoing
SITE DESCRIPTION
The field experiment was done in an olive grove at the “Poggio Torselli Estate” (Lat. 43°40′15″N; Long. 11°12′ 33″E; 230 m a.s.l.), planted in 1980 (cv. Frantoio). The olive grove has plant density of 400 trees ha⁻¹ (5 x 5 m) with a rows orientation is East–West. The olive grove is not irrigated. The soil is a clay loam with a pH of 7.5 (USDA). Two treatments were applied selecting 14 plants of the same age for each treatments. Biochar treatment: we distributed 15 kg (dry weight) of biochar per plant in the crown tree projection and after biochar application by hand, the biochar was incorporated into the soil using a chisel plow tiller at 0.3 m depth. The 14 Control plant were identified and the same soil and the same tillage was of the biochar plants has been done.

BIOCHAR AND ITS APPLICATION IN THE FIELD
The biochar applied was a commercial charcoal obtained wood through a pyrolysis process. The biochar at the end of the pyrolysis was crushed into particles smaller than 5 cm of diameter before the soil application. Chemical and physical characteristics have been determined.
MEASURED PARAMETERS
Field conditions: meteorological data,
Soil analysis and interactions with biochar: periodic soil analysis, pH, water retention, soil biological index.
Biochar dynamics and matrices: soil carbon content.
Production data: quality and quantity of olive.

PLANNED ACTIVITIES OR POTENTIAL EXPERIMENTAL ACTIVITIES
The long-term field experiment of Poggio Torselli will be designed to represent an opportunity for the scientific community to test and verify the long-term effects of adding biochar to soil.
PRESENTATION OF THE WORKING GROUP

The Poggio Torselli field experiment was planned and done by the Biochar Group of the IBE-CNR in collaboration with the Universities of Firenze, Insubria and Padova with a participation of the Poggio Torselli Estate

CONTACTS

Dr. Francesco Primo Vaccari (IBE-CNR) francesco.vaccari@ibe.cnr.it

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