Charcoal: the intersection of sustainable farming and forestry
Problems

Forest Fires

2015 was the largest wild fire year in recorded United States history, costing the US government close to $4 billion dollars

Carbon Loss in Soils

Agricultural soils have lost 50-70% of soil carbon due to tillage
Key Findings

• Enhanced soil total carbon by 32-33%
• Enhanced soil available $\text{NH}_4^+$ by 41-71%
• Enhanced Soil active organic N by 52-118%,
• Active P by 39%
• Soil $\text{NO}_3^-$ -N retention of 33%
• Increased retention of soil P, Fe, Mg, Zn was reflected in nutrient density of harvested dry beans.
• Benefits last for between 500-10,000 years
(b) End-growing Season

ANOVA
F=6.607
dF=120.3, p<0.001
(d) End-growing Season

ANOVA
F=3.994
df=120,3
p < 0.001
ANOVA
F=13.38
df=88,3, p<0.001
32.3, p<0.05