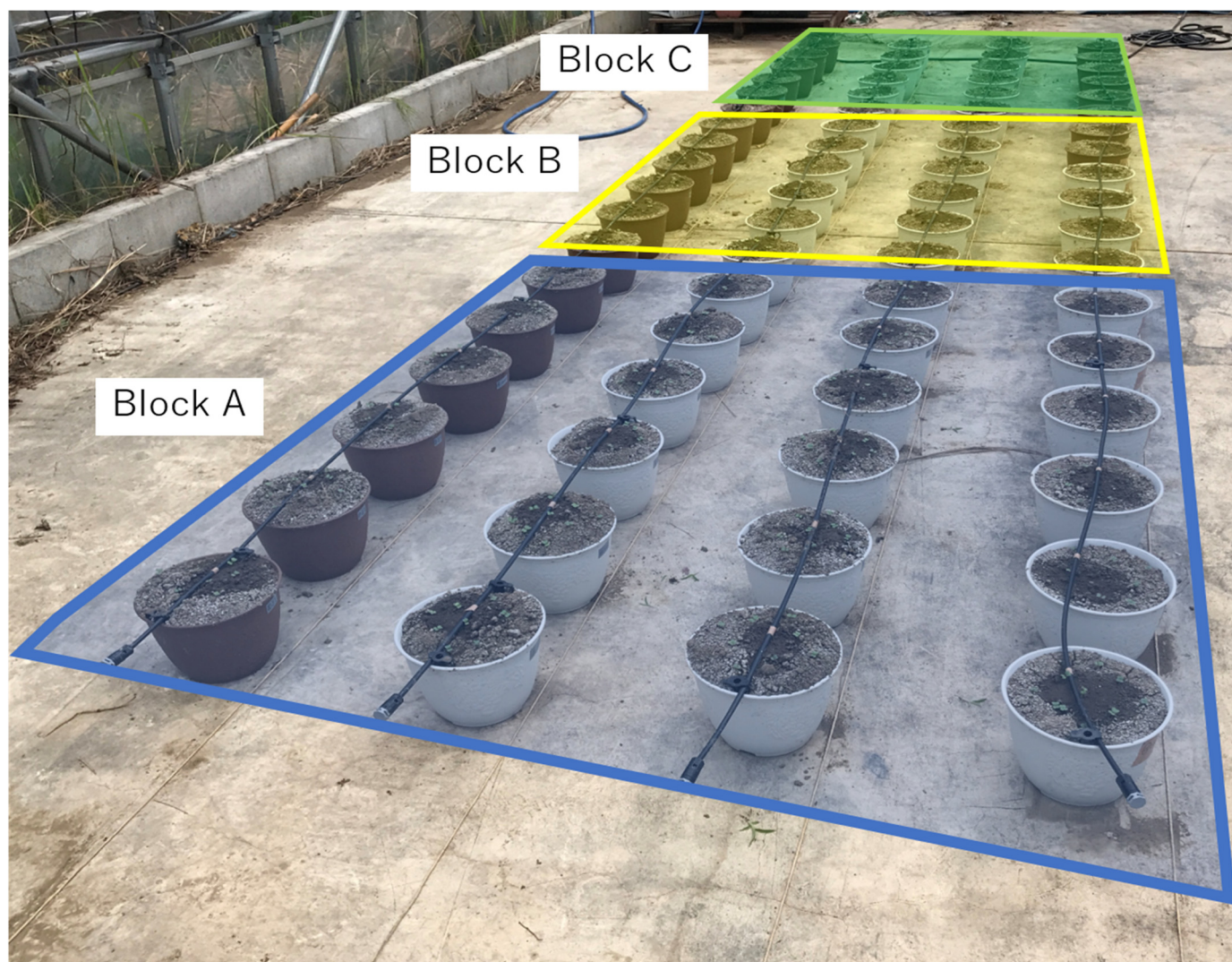


## Supplementary material

**Supplementary material Table S1:** Randomized complete block design of pot experiment with three replicates across Block A (blue), Block B (Yellow), and Block C (Green). 100CF: 100% chemical fertilizer application; 75CF: 75% chemical fertilizer application; 50CF: 50% chemical fertilizer application; B: Biochar application; 800PA: Pyroligneous acid (800-fold dilution) application; 200PA: Pyroligneous acid (200-fold dilution) application.

100C F	Cont rol	200P A- 50CF	800P A- 75CF	200PA -75CF	200P A- 50CF	200P A	800PA -50CF	100C F	800PA- 100CF	50CF	200 PA	Refere nce Soil	B- 75CF	200P A- 100C F	800P A- 50CF	B	75CF
B	200P A- 100C F	200P A- 75CF	200P A	800PA -100CF	800P A	200P A- 100C F	200PA -75CF	Cont rol	800PA7 5CF	800P A	PA- B- 75C F	200PA -75CF	200P A- 50CF	800P A-B- 100C F	PA- B- 75CF	800P A	200P A-B- 100C F
B- 75CF	800P A- 50CF	75CF	800P A- 50CF	Refere nce Soil	200P A-B- 100C F	800P A	Refere nce Soil	75CF	800PA- 100CF	800P A- 50CF	B	200PA -50CF	800P A- 100C F	Cont rol	200P A	200P A- 75CF	800P A-B
800P A-B- 75CF	50CF	800P A	800P A-B- 100C F	B- 100CF	200P A	200P A- 100C F	200PA -75CF	B- 100C F	200PA- 50CF	200P A- 50CF	B- 75C F	200PA	B- 100C F	800P A- 50CF	100C F	800P A- 75CF	50CF



**Supplementary material Figure S1:** Picture of randomized complete block design pot experiment.