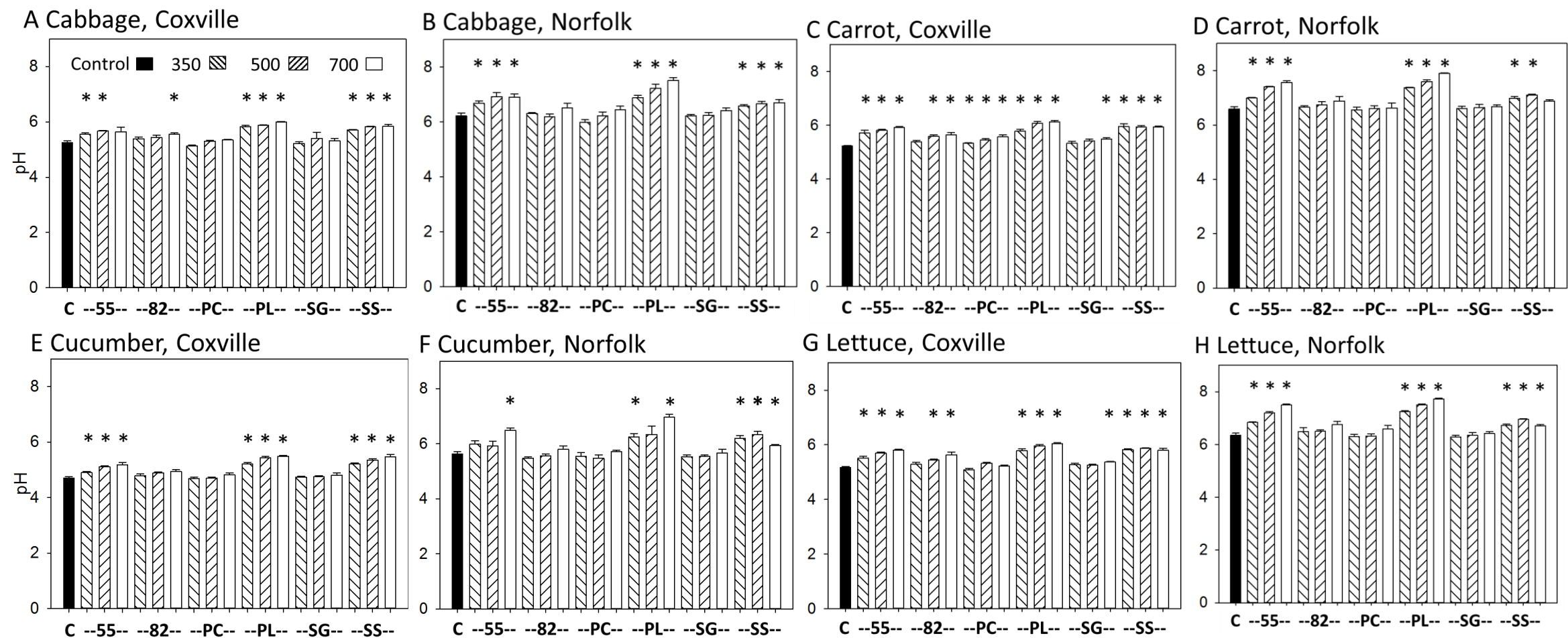
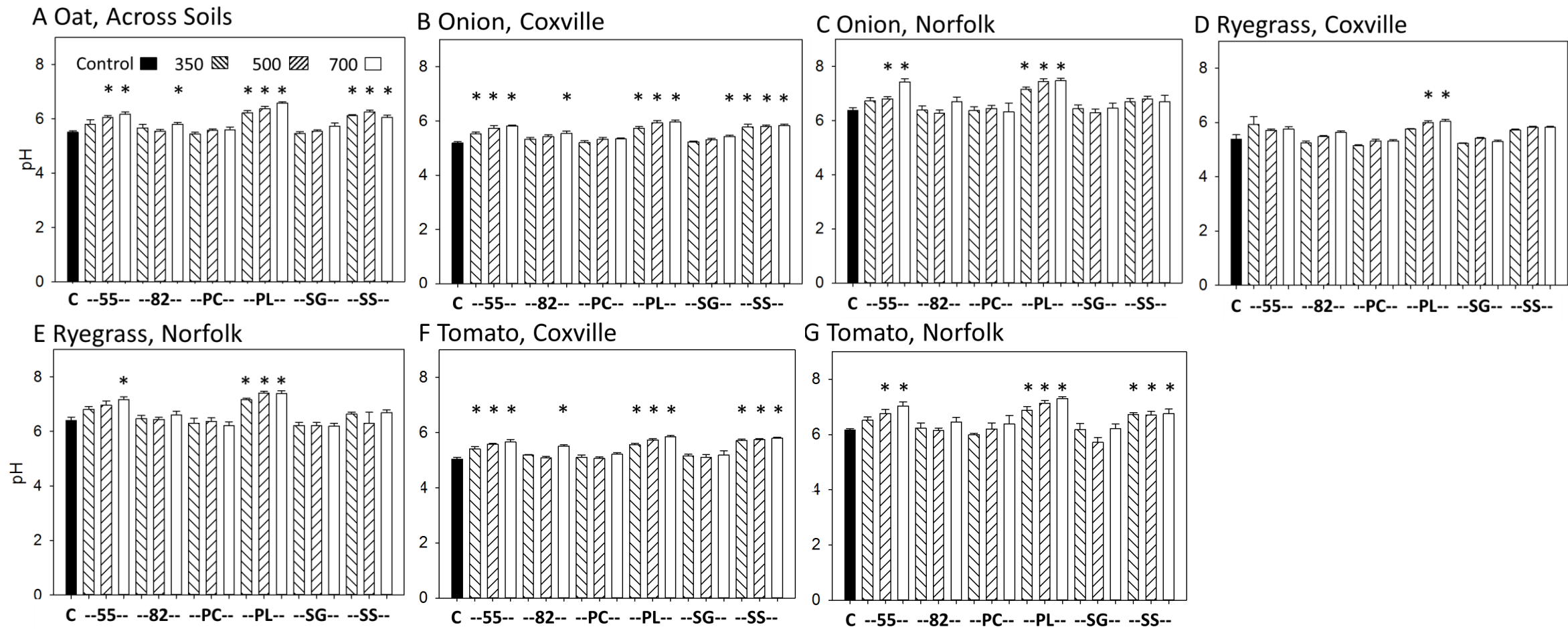


Supplementary Figure 1.



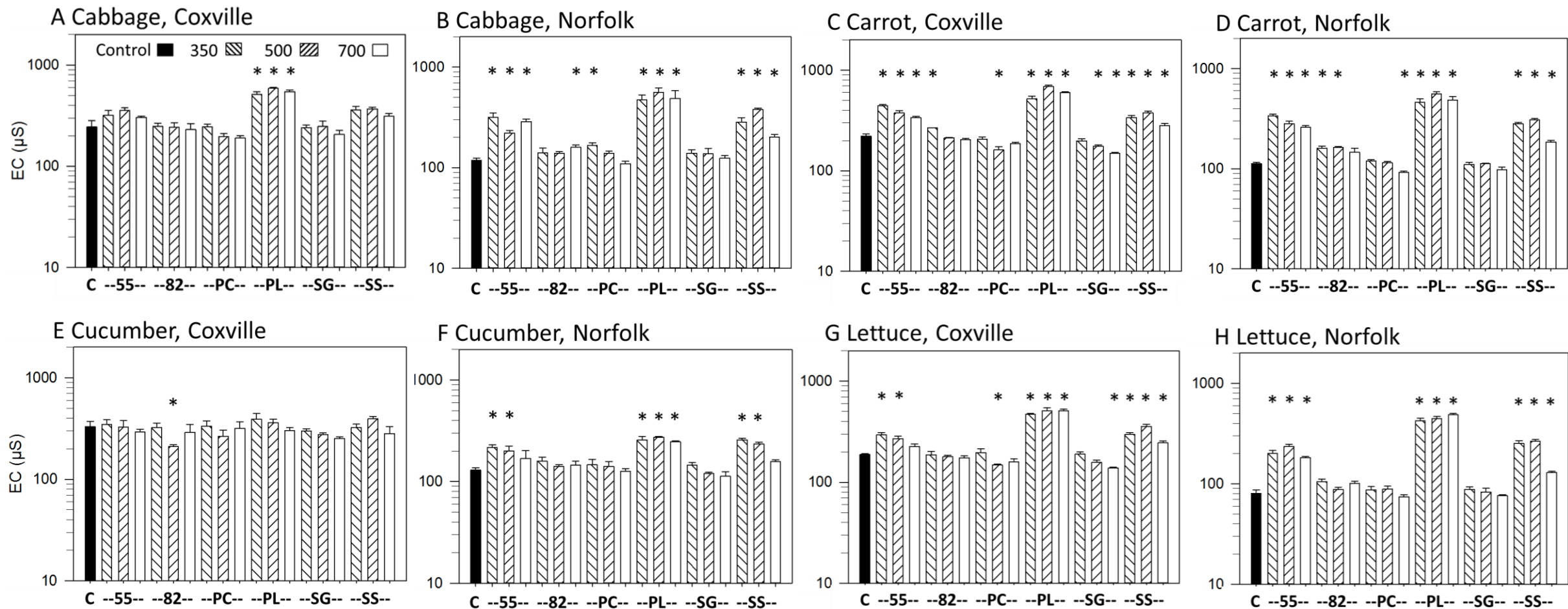
Supplementary Figure 1. Effects of biochar on soil pH for cabbage with Coxville (A) and Norfolk (B) soil, carrot with Coxville (C) and Norfolk (D) soil, cucumber with Coxville (E) and Norfolk (F) soil, and lettuce with Coxville (G) and Norfolk (H) soil. Biochar treatment abbreviations are: C=control (no biochar), PC=pine chips, PL=poultry litter, 55=50% PC and 50% PL, 82=80% PC and 20% PL, SG= switchgrass, and SS=swine solids. Bars are means plus upper bound standard error for four replicate trays, except for three for carrot Coxville 82 350, 55 350, PL 700, SS 700; and Norfolk PL 700. An “*” indicates a significant difference vs. the controls at p<0.05 using Dunnett’s test. The results for biochar treatments vs. controls are separate by soil type for each species. The boxes in panel “A” indicate no biochar controls, and biochars pyrolyzed at 350°, 500° and 700°C.

Supplementary Figure 2.



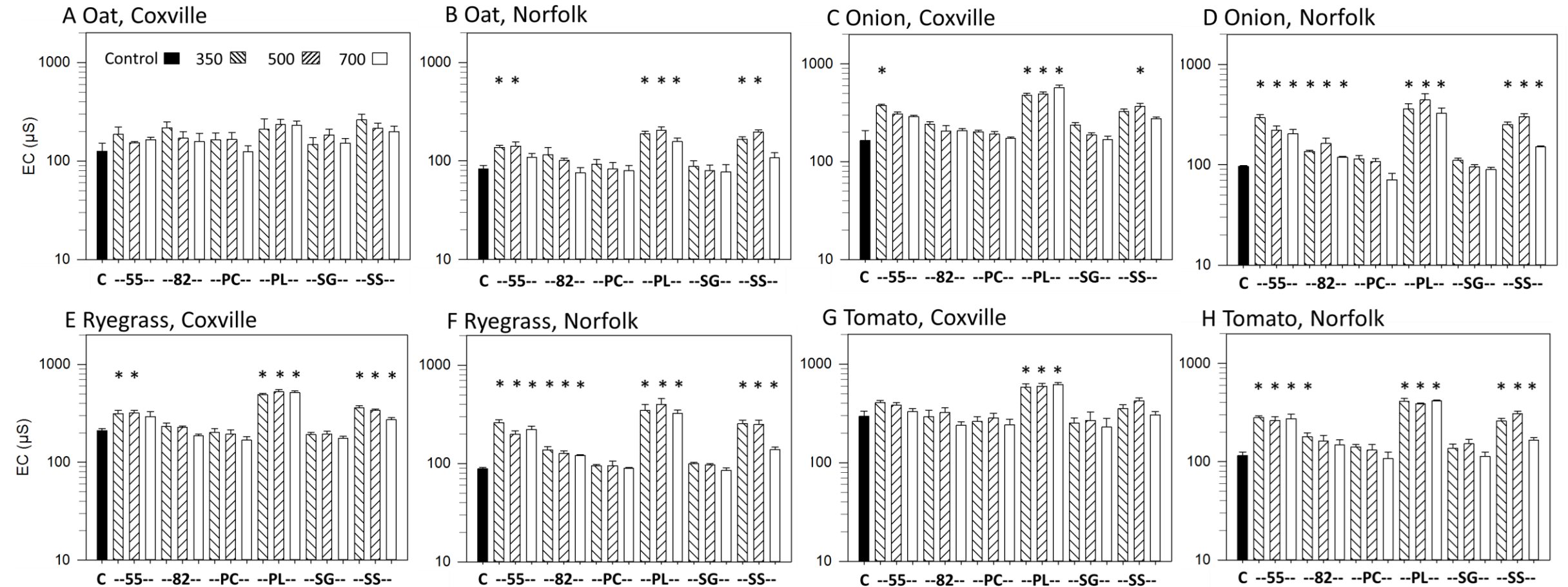
Supplementary Figure 2. Effects of biochar on soil pH for oat across soils (A), onion with Coxville (B) and Norfolk (C) soil, ryegrass with Coxville (D) and Norfolk (E) soil, and tomato with Coxville (F) and Norfolk (G) soil. Biochar treatment abbreviations are: C=control (no biochar), PC=pine chips, PL=poultry litter, 55=50% PC and 50% PL, 82=80% PC and 20% PL, SG= switchgrass, and SS=swine solids. Bars are means plus upper bound standard error for four replicate trays; except for three for oat, Norfolk SG 700, and tomato, Norfolk PC 350. An “*” indicates a significant difference vs. the controls at $p < 0.05$ using Dunnett’s test. The results for biochar treatments vs. controls are across soils for oat; for onion, ryegrass and tomato results are separate by soil type. The boxes in panel “A” indicate no biochar controls, and biochars pyrolyzed at 350°, 500° and 700°C.

Supplementary Figure 3.



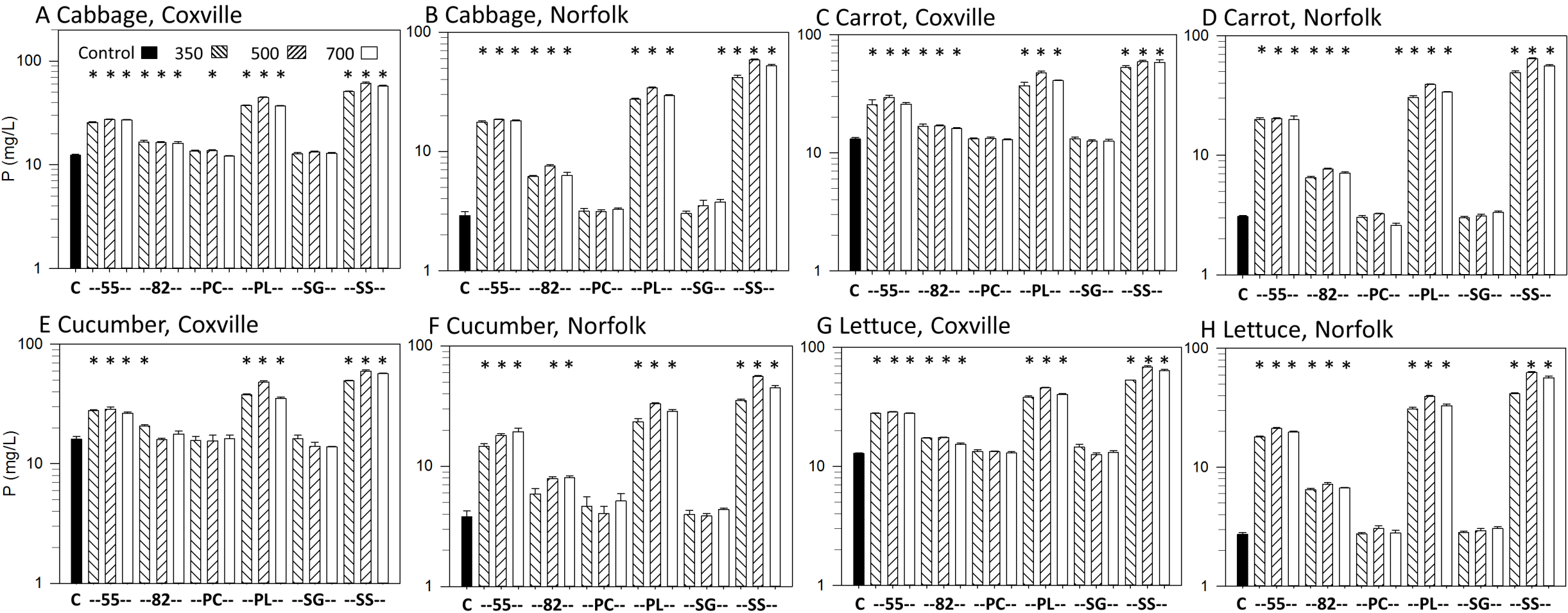
Supplementary Figure 3. Effects of biochar on soil EC for cabbage with Coxville (A) and Norfolk (B) soil, carrot with Coxville (C) and Norfolk (D) soil, cucumber with Coxville (E) and Norfolk (F) soil, and lettuce with Coxville (G) and Norfolk (H) soil. Biochar treatment abbreviations are: C=control (no biochar), PC=pine chips, PL=poultry litter, 55=50% PC and 50% PL, 82=80% PC and 20% PL, SG= switchgrass, and SS=swine solids. Bars are means plus upper bound standard error for four replicate trays, except for carrot Coxville 82 350, 55 350, PL 700, SS 700; and Norfolk PL 700. An “*” indicates a significant difference vs. the controls at p<0.05 using Dunnett’s test. The results for biochar treatments vs. controls are separate by soil type for each species. The boxes in panel “A” indicate no biochar controls, and biochars pyrolyzed at 350°, 500° and 700°C.

Supplementary Figure 4.



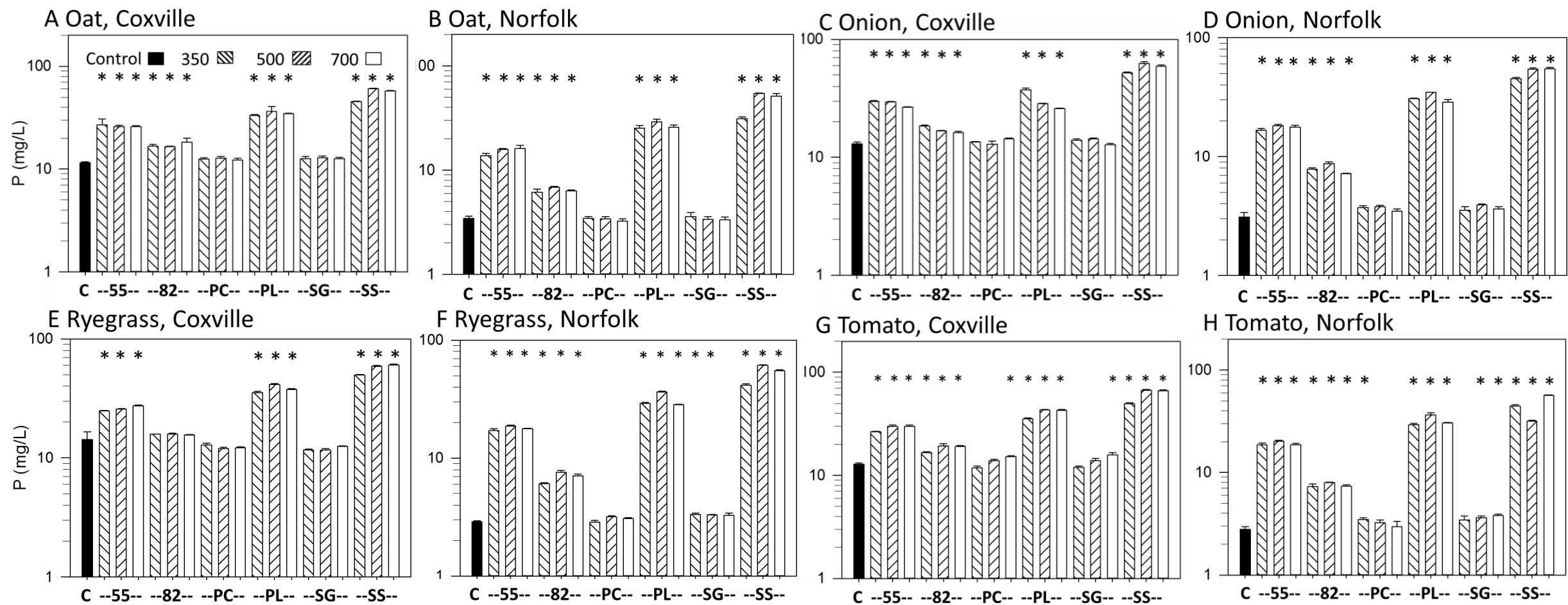
Supplementary Figure 4. Effects of biochar on soil EC for oat with Coxville (A) and Norfolk (B) soil, onion with Coxville (C) and Norfolk (D) soil, ryegrass with Coxville (E) and Norfolk (F) soil and tomato with Coxville (G) and Norfolk (H) soil. Biochar treatment abbreviations are: C=control (no biochar), PC=pine chips, PL=poultry litter, 55=50% PC and 50% PL, 82=80% PC and 20% PL, SG= switchgrass, and SS=swine solids. Bars are means plus upper bound standard error for four replicate trays; except for three for oat, Norfolk SG 700. An “*” indicates a significant difference *vs.* the controls at $p < 0.05$ using Dunnett’s test. The results for biochar treatments *vs.* controls are separate by soil type for each species. The boxes in panel “A” indicate no biochar controls, and biochars pyrolyzed at 350°, 500° and 700°C.

Supplementary Figure 5.



Supplementary Figure 5. Effects of biochar on soil extractable phosphorus for cabbage with (A) Coxville and (E) Norfolk soil, carrot with (B) Coxville and (F) Norfolk soil, cucumber with (C) Coxville and (G) Norfolk soil, and lettuce with (D) Coxville and (H) Norfolk soil. Biochar treatment abbreviations are: C=control (no biochar), PC=pine chips, PL=poultry litter, 55=50% PC and 50% PL, 82=80% PC and 20% PL, SG= switchgrass, and SS=swine solids. Bars are means plus upper bound standard error for four replicate trays; except for three for cabbage Norfolk SS 500; for carrot Coxville 55 350, 82 350, PL 700 and SS 700; carrot Norfolk PL 700; cucumber Coxville PC 350, PC 500 and 55 350; cucumber Norfolk PL 350; and lettuce Norfolk control. An “*” indicates a significant difference vs. the controls at $p < 0.05$ using Dunnett’s test. The results for biochar treatments vs. controls are separate by soil type for each species. The boxes in panel “A” indicate no biochar controls, and biochars pyrolyzed at 350°, 500° and 700°C.

Supplementary Figure 6.



Supplementary Figure 6. Effects of biochar on soil extractable phosphorus for oat with (A) Coxville and (E) Norfolk soil, onion with (B) Coxville and (F) Norfolk soil, ryegrass with (C) Coxville and (G) Norfolk soil, and tomato with (D) Coxville and (H) Norfolk soil. Biochar treatment abbreviations are: C=control (no biochar), PC=pine chips, PL=poultry litter, 55=50% PC and 50% PL, 82=80% PC and 20% PL, SG= switchgrass, and SS=swine solids. Bars are means plus upper bound standard error for four replicate trays; except for three for oat Norfolk 55 500 and SG 700, onion Norfolk PL 500, ryegrass Coxville 55 350, and ryegrass Norfolk 55 350, SS 500 and SS 700. An “*” indicates a significant difference v.s. the controls at $p < 0.05$ using Dunnett’s test. The results for biochar treatments v.s. controls are separate by soil type for each species. The boxes in panel “A” indicate no biochar controls, and biochars pyrolyzed at 350°, 500° and 700°C.