

Table 11. Soil Fertility Analysis Means and Standard Errors Associated with Columbus Woodland Plots and the Columbus Orchard¹.

Fertility Parameter	Woodland Plots		Orchard (n=2)
	Site 1 (n=4)	Site 2 (n=6)	
pH	6.01 ± 0.12	7.18 ± 0.07	7.25 ± 0.06
Organic Matter (%)	5.27 ± 0.64	6.04 ± 0.12	4.58 ± 0.04
CEC (meq/100g)	15.90 ± 2.12	16.47 ± 0.31	15.14 ± 0.06
Soluble Salts ² (uS/cm)	140.0 ± 10.0	212.1 ± 7.9	203.2 ± 8.2
Carbon ³ (%)	2.79 ± 0.34	4.17 ± 0.25	2.51 ± 0.15
Nitrogen ³ (%)	0.22 ± 0.03	0.29 ± 0.02	0.21 ± 0.02
Base Saturation ⁴			
Ca (%)	46.6 ± 5.3	82.3 ± 1.5	71.4 ± 0.8
Mg (%)	14.3 ± 1.7	16.2 ± 1.5	23.8 ± 1.3
K (%)	1.4 ± 0.1	1.5 ± 0.1	4.8 ± 0.4
Elemental Analysis ⁵			
Macronutrients			
Ca (µg/g)	1703 ± 325	3212 ± 182	2574 ± 75
K (µg/g)	108.7 ± 22.3	110.5 ± 11.1	334.8 ± 29.6
Mg (µg/g)	311.6 ± 71.0	361.0 ± 24.0	481.5 ± 24.4
P (µg/g)	11.7 ± 0.9	10.2 ± 1.1	99.4 ± 4.5
S (µg/g)	10.8 ± 0.8	15.5 ± 1.4	11.2 ± 0.9
Micronutrients			
Al (µg/g)	515.7 ± 28.1	223.8 ± 4.1	343.8 ± 25.6
B (µg/g)	23.6 ± 0.1	24.3 ± 0.1	23.7 ± 0.1
Cu (µg/g)	2.9 ± 0.6	5.5 ± 0.2	9.8 ± 0.9
Fe (µg/g)	178.9 ± 11.9	129.5 ± 7.5	121.6 ± 10.2
Mn (µg/g)	58.2 ± 7.2	57.1 ± 4.0	81.0 ± 6.7
Mo (µg/g)	0.03 ± 0.0	0.03 ± 0.0	0.03 ± 0.00
Na (µg/g)	80.1 ± 8.3	86.1 ± 2.2	82.9 ± 0.0
Zn (µg/g)	9.7 ± 0.5	23.4 ± 19.1	13.5 ± 0.2

¹Analyses performed by the CFAES Agricultural and Environmental Testing Core, CFAES Wooster Campus, Ohio State University, Wooster, Ohio.

²uS/Cm = 1000-3 dS/m; 1dS/m=1mmho/cm.

³Total Carbon and Nitrogen (%) was determined on a Vario Max Cube Carbon-Nitrogen Analyzer (Elementar Americas, Mt. Laurel, NJ).

⁴Base saturation was determined using an ammonium acetate extraction.

⁵Elemental Analysis of a Mehlich 3 extraction was performed on an Agilent 5110 Inductively Coupled Plasma (ICP) Mass Spectrometer (Agilent, Inc. Santa Clara, CA).

Table 12. Leaf fertility analysis means and standard errors associated with pawpaw woodland plots and orchard¹.

Fertility Parameter	Woodland Plots		Orchard (n=2)	Sufficiency Range ²
	Site 1 (n=4)	Site 2 (n=5)		
pH	6.04 ± 0.02	6.02 ± 0.04	6.07 ± 0.01	–
Carbon ³ (%)	45.69 ± 0.18	45.99 ± 0.12	45.69 ± 0.24	–
Nitrogen ³ (%)	3.53 ± 0.10	3.37 ± 0.17	2.62 ± 0.12	1.7-2.5
Ash (%)	8.94 ± 0.16	8.38 ± 0.18	7.29 ± 0.21	–

Elemental analysis⁴

Macronutrients

Ca (mg/g)	14.14 ± 1.02	15.31 ± 0.63	12.15 ± 0.41	12-20
K (mg/g)	17.81 ± 0.77	13.45 ± 1.56	12.28 ± 1.34	15-25
Mg (mg/g)	3.50 ± 0.14	3.43 ± 0.20	3.64 ± 0.12	2.6-3.6
P (mg/g)	3.34 ± 0.6	2.79 ± 0.2	3.26 ± 0.4	1.5-3.0
S (mg/g)	2.85 ± 0.3	3.66 ± 0.25	1.90 ± 0.01	1.0-3.0

Micronutrients

Al (µg/g)	40.9 ± 1.3	44.7 ± 9.8	25.9 ± 0.3	–
B (µg/g)	84.9 ± 9.1	73.6 ± 4.5	88.2 ± 0.1	20-60
Cu (µg/g)	11.9 ± 0.1	12.1 ± 0.3	8.7 ± 0.4	5-12
Fe (µg/g)	105.5 ± 2.7	96.8 ± 9.2	60.7 ± 0.2	45-500
Mn (µg/g)	42.1 ± 8.3	27.2 ± 1.3	18.2 ± 0.0	25-120
Mo (µg/g)	1.48 ± 0.52	0.98 ± 0.11	6.66 ± 1.03	0.1-0.2
Na (µg/g)	30.0 ± 2.8	31.9 ± 1.7	22.7 ± 1.4	–
Zn (µg/g)	14.7 ± 0.9	15.1 ± 0.8	15.1 ± 1.7	15-120

¹Analyses performed by the CFAES Agricultural and Environmental Testing Core, CFAES Wooster Campus, Ohio State University, Wooster, Ohio.

²Sufficiency ranges as reported for apple (Nielson and Nielson, 2003)

³Total Carbon and Nitrogen (%) was determined on a Vario Max Cube Carbon-Nitrogen Analyzer (Elementar Americas, Mt. Laurel, NJ).

⁴Elemental Analysis was performed after a Mehlich 3 extraction on an Agilent 5110 Inductively Coupled Plasma (ICP) Mass Spectrometer (Agilent, Inc. Santa Clara, CA).