

Variable	What this means	Optimal range	Average project
pH	Measure of acidity or basicity	6.5-6.8; higher values are good in that they reduce lead availability. Some nutrients like phosphorus can become unavailable if pH is too high.	Raised garden 7.4 Soil garden 7.6 Path 7.7
Organic Matter _%	Organic matter influences soils physical, chemical and biological fertility. Values in mineral soils vary with texture	Clay% Organic Matter 10 3 20 4 40 7 50 9	Raised garden 12 Soil garden 5 Path 5
	Values in 'constructed' soils made with composts have values that are unusually high (above 20%) and have nothing to do with clay	Particle size is an important characteristic of compost-based media; 70% should be fine (<4 mm) to retain needed water and provide physical support	
Nitrogen Release _lbs/acre	Estimates plant available Nitrogen. This is a small percentage of the organic N in soils released by microbial activity.	A value of 120 or more is enough N for most crops, according to the Virginia Association for Biological Farming	Raised garden 120 Soil garden 97 Path 99
Phosphorus (P) _ppm	Is a measure of phosphorus that plants can readily take up. Bray P is not a great test for soils with high pH like many considered in this work. Typically it underestimates levels.	150 ppm and above is excessive, above 75 ppm is adequate for corn but also excessive for high nutrient demand veggies like broccoli, optimum for most soils would be 25-40 ppm.	Raised garden 190 Soil garden 73 Path 39
K_ppm	K_ppm	Plant available K, for most soils optimum would be 100-140, high K fixing up to 200 ok; values above 180-240 are excessive in most soils	Raised garden 396 Soil garden 273 Path 222

EPA Lead _ppm	Is a measure of total lead obtained by a strong acid digest carried out under heated conditions. This is the most commonly measured and reported test value. Unfortunately, it is expensive and is not a great estimate of lead bioavailability.	There are no EPA standards specifically for vegetable gardening. 400 ppm is when the EPA says children should not play in the soil. Their cutoff for adults is 1200 ppm. Various studies suggest not gardening in soil above 300 - 600 ppm.	Raised garden 61 Soil garden 225 Path 151
Mehlich III Lead _ppm	This is an estimate of lead that would be more likely to be bioavailable based on extraction with a weak acid.	There is no established standard for this; we found a strong correlation with EPA with the proportion being about 10:1 EPA: MIII and so suggest that a M value above 40 would be one where children should not play	Raised garden 26 Soil garden 102 Path 74
C:N ratio	This is a ratio of the amount of carbon to nitrogen. Lots of carbon can mean that as microbes use it up, they also take up nitrogen which plants then do not have access to. Unfinished compost and woody mulches can result in a high ratio.	10:1 to 15:1 is ideal for home garden soil. Under 20:1 there is less danger of microbes taking nitrogen from the plants.	Raised garden 29:1 Soil garden 41:1 Path 39:1