SVCA – BSCIA Water Infiltration Project Summary
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2019

This year's water infiltration project, supported by SVCA and BSCIA, is a continuation of the work begun in 2018. Based on previous results which showed no correlation between % organic matter and water infiltration rates, additional soil parameters were measured. We conducted soil assessments on 17 different fields throughout Bruce County, consisting of a water infiltration test, worm count, topsoil depth measurement, bulk density, % organic matter (%OM) and active carbon (Active C).

Once again, as with last year's results, no obvious correlations were observed between most measured parameters (Figure 1). However, a definite correlation between %OM and Active C was observed (Figure 2). This is likely an effect of the naturally high organic carbon content within organic matter, which may be related to biologically mediated soil properties (the "active" component of soil carbon).
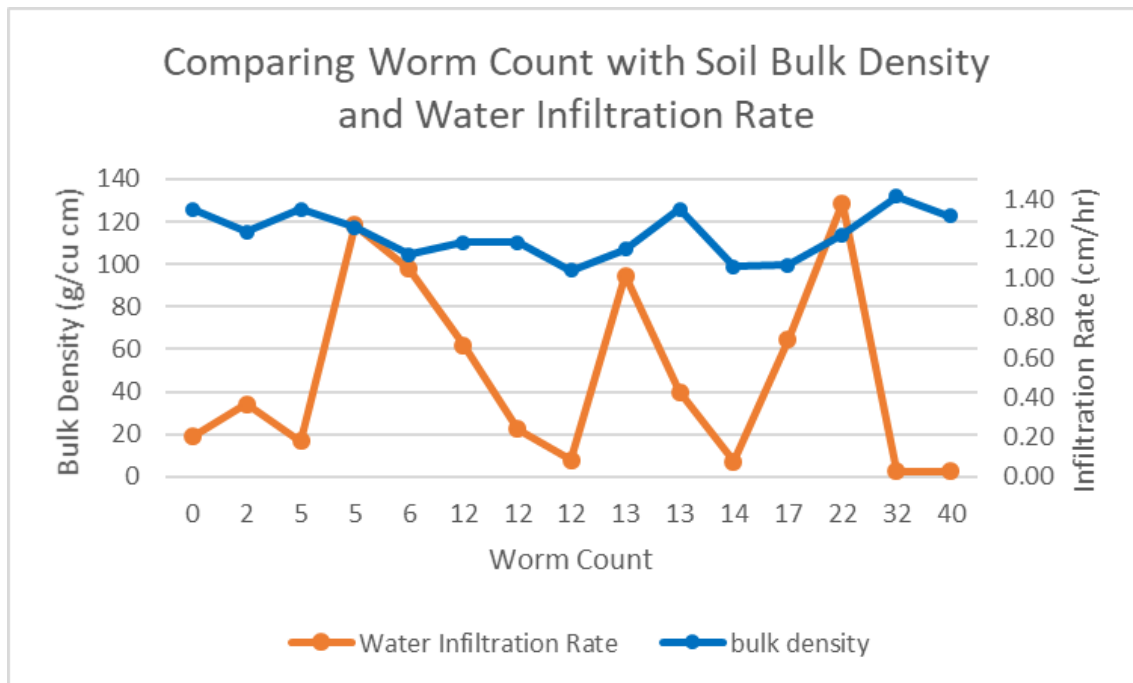

Figure 1. Demonstrating the lack of correlation between worm counts, bulk density and water infiltration rate measured in soils at 17 different sites in Bruce County, September 2019.

Even though we did not see a correlation between worm counts and %OM results or Active C, a surprising connection was observed within the two soils with the highest worm counts. These sites also tested lowest in water infiltration and high in bulk density and had well-established crops.

Another interesting outcome in this project was with the extremely sandy soil. As can be predicted no worms were found in this soil, however organic matter was found to be higher than the average sandy soil at 2.7%, and water infiltration rate was just below the county average. This grower has been applying manure and growing cover crops in an effort to increase soil organic matter for more than 20 years.

As expected, the field that had been planted in a perennial crop (hay) tested highest in %OM and Active C. However, this soil had a lower-than-average worm count and bulk density for this county. These trends suggest that soil type and management key parameters to measuring and qualifying soil health.
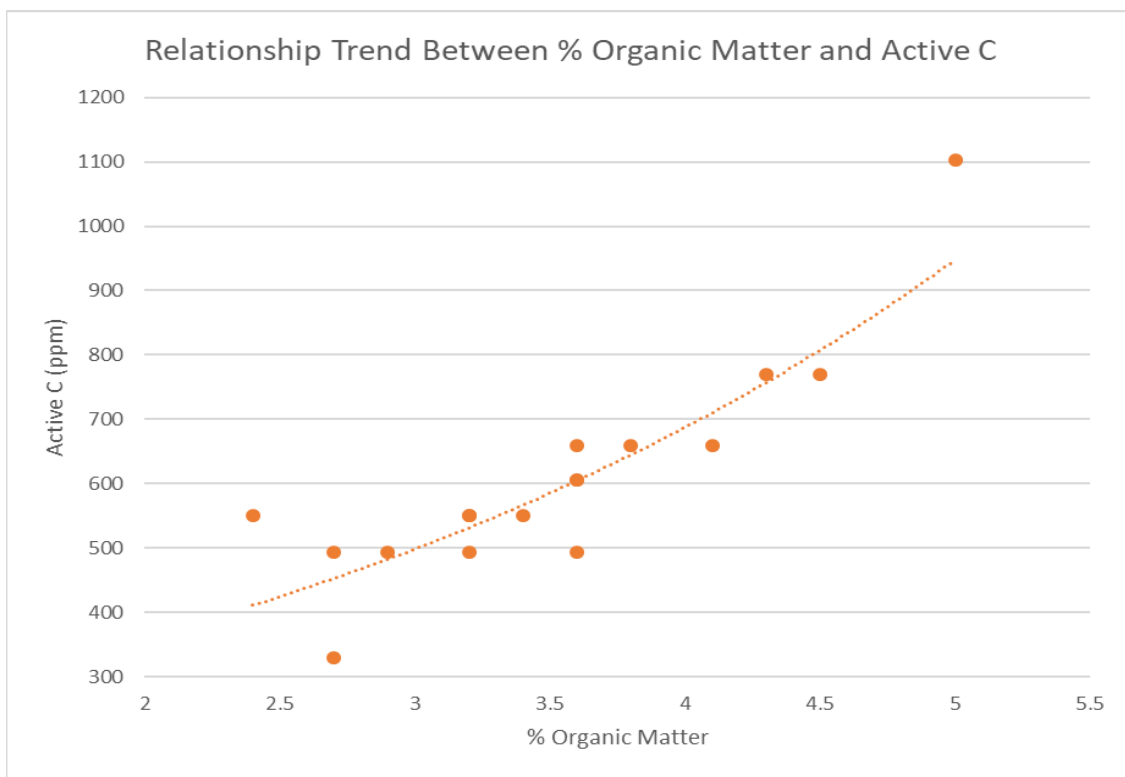

Figure 2. Observation of the correlation between %OM and Active Carbon in soil collected from 17 different sites in Bruce County, September 2019. *Trendline not statistically calculated, for observance of general trend only

This year's water infiltration and soil health project resulted in very interesting correlative data. While soil health testing parameters may be becoming more strongly defined, they are still unrefined. As the agricultural community moves towards better soil health strategies, more projects like this need to be done to strengthen the definition of, and the pathway to, improving soil health.