



2015 SOIL HEALTH WORKSHOP

2015 CORNELL SOIL HEALTH TRAIN-THE-TRAINER WORKSHOP

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AGGREGATE STABILITY...Why measure aggregate stability?

Aggregate stability is the measure of the ability of the soil to withstand slaking (falling apart) under the influence of rainfall, given its management. You will use the Cornell Sprinkler, which delivers a controlled amount of rain per minute. It was developed by Bob Schindelbeck and Harold van Es to test aggregate stability, as well as runoff and infiltration. The sprinkler closely mimics the field conditions of a rainstorm after a drying period, when soils are most vulnerable to the impact of rain. Common problems faced by NY and Northeast growers include soil compaction, drought-prone soils, decreased infiltration, reduced water holding capacity, excessive runoff, and erosion. All of these problems are more likely to occur in soils with unstable aggregates. Aggregate stability is a good indicator of physical soil health (i.e. of soil tilth), but also, indirectly of the biological health of a soil. Soil aggregates are held together by secretions from roots, microbial processes and fungal hyphae.

	A	B	C	D	E	F
Sample ID	Sieve tare Wt (g)	Sieve+ Dry Soil wt (g)	dry filter wt.	Filter + oven dry soil wt.	dry cup wt.	cup + oven dry stones wt.

Percent Stability of Aggregates =

$$\frac{[(\text{initial dry material on sieve (g)} - \text{sieve wt (g)}) - (\text{dry rock and organic material in can (g)} - \text{can wt (g)}) - ((\text{dry filter and failed soil (g)} - \text{filter wt (g)} - \text{can wt (g)})]}{[(\text{initial dry material on sieve (g)} - \text{sieve wt (g)}) - (\text{dry rock and organic material in can (g)} - \text{can wt (g)})]} * 100$$