

Table 1. Summary of soil quality analysis sampling procedures, schedules, and methods

Soil Quality Parameter	Soil Sampling Procedure	Sampling Schedule	Analysis Method	Reference
Soil temperature	One iButton/plot	Continuous throughout fall and growing season	iButton datalogger	
Soil moisture	One probe/plot	"	Soil moisture sensor	
PHYSICAL				
Aggregate stability	Composite of 5 soil cores (depth=15 cm) per plot	Before seaweed application (Oct 11); before sweet corn seeding (May 12); at sweet corn harvest (Sept 12)	Wet sieving for determination of water stable aggregates	USDA ARS, 1999
Available water capacity	Two 15 cm cores per plot	"	Water content at field capacity	"
Infiltration	One ring/plot	"	Flooded/ponded infiltrometer method	"
Bulk density	Three samples/plot	"	Dry weight per unit volume	"
BIOLOGICAL				
Organic matter content	Composite of 5 soil cores (depth=15 cm) per plot	Before and after seaweed application, monthly through growing season	Loss-on-ignition at 550°C	Gugino <i>et al.</i> , 2009
Active carbon	"	"	KMnO ₄ oxidation, colorimetric determination	"
Potentially mineralizable nitrogen	"	"	Comparison of extractable NH ₄ before and after 7 d incubation	"
Beneficial and plant-parasitic nematodes	"	"	Modified pie plate extraction; counting; dT-RFLP community analysis	Donn <i>et al.</i> , 2011
Soil respiration	In-field test (1/plot)	"	Closed chamber CO ₂ evolution	Rolston, 1986
Earthworm abundance	30 x 30 x 30 (width x length x depth) sample (1/plot)	Before seaweed application (Oct 11); before sweet corn seeding (May 12); at sweet corn harvest (Sept 12)	Counting	USDA ARS, 1999

Insect abundance	Three pitfall traps/plot	Before and after seaweed application, monthly through growing season	Pitfall trap collection, visual identification to family	Byrne, 2006
CHEMICAL				
Nitrate, ammonium	Composite of 5 soil cores (depth=15 cm) per plot	"	KCl extraction, microplate colorimetric analysis	Gugino <i>et al.</i> , 2009
Phosphate	"	"	Morgan's Solution extraction, microplate colorimetric analysis	"
Potassium	"	"	Morgan's Solution extraction, ICP analysis	"
Ca, Mg, Fe, Al, Mn, Zn, Cu	"	"	X-Ray Fluorescence	Dos Anjos <i>et al.</i> , 2000
Sulfur, sulfate	"	"	XRF, calcium chloride extract and spectrophotometric analysis	"
Heavy metals (Pb, Cd, Ni, Cr)	"	Before seaweed application (Oct 11); before sweet corn seeding (May 12); at sweet corn harvest (Sept 12)	XRF	"
Salinity (electrical conductivity)	"	Before and after seaweed application, monthly through growing season	EC meter, 1:2 soil:water	
pH	"	"	pH meter, 1:1 soil:water	