

Materials List for:

# Isolation and Analysis of Microbial Communities in Soil, Rhizosphere, and Roots in Perennial Grass Experiments

Morgan R. McPherson<sup>1</sup>, Peng Wang<sup>1</sup>, Ellen L. Marsh<sup>1</sup>, Robert B. Mitchell<sup>2</sup>, Daniel P. Schachtman<sup>1</sup>

<sup>1</sup>Department of Agronomy and Horticulture and Center for Plant Science Innovation, University of Nebraska-Lincoln

<sup>2</sup>USDA-ARS, Wheat, Sorghum and Forage Research Unit, University of Nebraska-Lincoln East Campus

Correspondence to: Daniel P. Schachtman at [daniel.schachtman@unl.edu](mailto:daniel.schachtman@unl.edu)

URL: <https://www.jove.com/video/57932>

DOI: [doi:10.3791/57932](https://doi.org/10.3791/57932)

## Materials

Name	Company	Catalog Number	Comments
Dneasy PowerSoil HTP 96 Kit	Qiagen/MoBio	12955-4	Extraction kit for soil and rhizosphere
Dneasy PowerPlant HTP 96 Kit	Qiagen/MoBio	13496-4	Extraction kit for roots
D-Handle Digging shovel, 101 cm L	Fiskars	9669	
Rapid Tiller, 40 cm L	Truper	34316	
Ziploc Bags, 17.7 cm x 19.5 cm	Ziploc	NA	
Cooler	Any	NA	
Wash pan	Any	NA	
Plastic bucket	Any	NA	
Gloves (work and lab)	Any	NA	
20 cm diameter Soil sieve #8, 2360 µm mesh size	Dual Manufacturing Co., Chicago IL	US8-8FS	
20 cm diameter Soil Sieve #4, 4750 µm mesh size	Dual Manufacturing Co., Chicago IL	US8-4FS	
portable generator	Honda brand works well	NA	
Sterile cell strainers 100 µm mesh size	Fisher Scientific	22-363-549	
NaH <sub>2</sub> PO <sub>4</sub> ·H <sub>2</sub> O	VWR	0823	
Na <sub>2</sub> HPO <sub>4</sub>	VWR	0404	
Silwet L-77	Lehman Seeds	VIS-30	Surfactant
Autoclaves	Any	NA	
Drying Oven	Any	NA	
Scale	Any	Any	
Bleach	COLOROX - household strength	NA	
Tween 20	Any	NA	
Liquid Nitrogen	Any	NA	
Dry Ice pellets	Any	NA	
Ethanol	Any	NA	
11 cm precision fine point tweezers	Fisher	17456209	
18 cm Straight point specimen forceps	VWR	82027-436	
13.5 cm Pruning Scissors	Fiskars	9921	
2 mL tube	Any	NA	
15 mL PP conical tube	MIDSCI	C15B	

50 mL PP conical tube	MIDSCI	C50B	
Ultrapure water	Millipore-sigma	Milli-Q Integral, Q-POD	
Qubit 2.0 fluorometer	Invitrogen	Q32866	
Qubit dsDNA HS Assay Kit	Invitrogen	Q32854	For DNA quantification of removed samples
QuantiFluor dsDNA System	Promega	E2670	For DNA quantification
96-Well Black with Clear Flat Bottom Plates	Corning	3631	
pPNA PCR Blocker	PNA Bio	PP01-50	
mPNA PCR Blocker	PNA Bio	MP01-50	
Genomic DNA from Microbial Mock Community B (Even Low Concentration) v5.1L, for 16s rRNA Gene sequencing	BEI Resources	HM782D	
Adhesive 8 well-strips for plates	VWR	89134-434	
Stainless steel beads, 3.2 mm dia	Next Advance	SSB32	
1 ml Assay block (DNA extraction plate for the Qiagen/MoBio Dneasy PowerPlant HTP Kit)	CoStar	3959	
antistatic PP weighing funnel, size small for soil/rhizosphere	TWD Tradewinds, INC	ASWF1SPK	
antistatic PP weighing funnel, size x-small for root/leaf	TWD Tradewinds, INC	ASWFXSCS	
Genie 2 Digital Vortex	Scientific Industries	SI-0236	
Vortex adapter for 50 mL tubes	Scientific Industries	SI-H506	
Mortar (100 mL) and pestle	Any	NA	
Metal micro-spatula	VWR	80071-672	
Disposable antistatic microspatulas	VWR	231-0106	
Brown Paper bag 2# (10.95 cm x 6.19 cm x 20 cm)	Duro	18402	
5424 Centrifuge for 2 mL tube	Eppendorf	22620461	
Centrifuge for 96-well plate	Sigma4-16S	81510	
Centrifuge rotor for 50 mL tubes	Sigma4-16S	12269 - Biosafe	
KAPA HiFi DNA polymerase	Kapa Biosystems		