

Materials List for:

Measurement of Greenhouse Gas Flux from Agricultural Soils Using Static Chambers

Sarah M. Collier¹, Matthew D. Ruark², Lawrence G. Oates^{3,4}, William E. Jokela⁵, Curtis J. Dell⁶

¹Office of Sustainability, University of Wisconsin-Madison

²Department of Soil Science, University of Wisconsin-Madison

³Department of Agronomy, University of Wisconsin-Madison

⁴Great Lakes Bioenergy Research Center, University of Wisconsin-Madison

⁵USDA-ARS Dairy Forage Research Center

⁶USDA-ARS Pasture Systems Watershed Management Research Unit

Correspondence to: Curtis J. Dell at curtis.dell@ars.usda.gov

URL: <https://www.jove.com/video/52110>

DOI: [doi:10.3791/52110](https://doi.org/10.3791/52110)

Materials

Name	Company	Catalog Number	Comments
5.9 ml soda glass flat bottom 55 x 15.5 mm	Labco Limited	719W	Collection vials
16.5 mm screw caps with pierceable rubber septum	Labco Limited	VC309	Caps for vials
90-well plastic vial rack, 17.1 mm well I.D.	Wheaton	868810	Rack for organizing vials
Regular bevel needles 23 G x 1"	BD	305193	Needles for sample collection
Stopcocks with luer connections, 1-way, male slip	Cole-Parmer	EW-30600-01	Stopcocks for syringes
30 ml syringe, slip tip	BD	309651	Syringes for sample collection
Stopwatch or timer	Various	N/A	For timing field sampling
Stainless steel or galvanized utility pans with rim, or fabricated stainless steel or PVC chambers and lids, dimensions as appropriate to experimental system	Various	N/A	Chamber anchor and lid - bottom cut out of anchor, holes for septum and vent tubing bored in lid
Gray butyl stoppers 20 mm	Wheaton	W224100-173	Chamber septa for syringe sampling - insert into hole bored in lid top
Tygon tubing 4.0 mm I.D. x 5.6 mm O.D.	Sigma-Aldrich	Z685623	Chamber vent tubing - insert in hole bored in lid side, flush with exterior, approximately 25 cm coiled in lid interior (a 1 ml syringe tip may be used as an attachment mechanism)
Adhesive foam rubber tape or HDPE O-ring	Various	N/A	Chamber sealing mechanism - fastened to underside of lid rim
Reflective insulation, 0.3125" thickness	Lowe's	409818	Insulating and reflective coating - affix to exterior of chamber lid
Large metal binder clips, 2" size with 1" capacity, or manufactured draw latch as appropriate	Staples / McMaster	831610 (Staples) / 1863A21 (McMaster)	Lid attachment mechanism - for clamping lid to anchor during sampling
Gas chromatography equipment fitted with electron capture detector for nitrous oxide, infrared gas analyzer or thermal conductivity detector for carbon dioxide, flame ionization detector for methane	Various	N/A	For sample analysis