



Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program

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Trip Report: Lesotho 28 November 2010 – 25 February 2011

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Purpose of Trip: Set up and monitor research site

Sites Visited: Maphutseng and Roma, Lesotho

Description of Activities

To determine soil C movement the Lesotho team is gathering data on carbon dioxide flux at the conservation agriculture research site at Maphutseng. The measurements used to calculate CO₂ flux are collected by a set of Bowen ratio instrumentation towers in two maize fields, one under conservation agriculture and one plowed. Units were setup and required a variety of maintenance tasks, from regularly switching filters, tubing, and batteries to changing out the gear motor that rotates the right and left sensor arms at five minute intervals. The unit is monitored daily to assure proper data collection and logging.

The research site at Maphutseng is focused on determining the best conservation agriculture practices for this sub-Saharan African climate. Trials include fertilizer trials to determine the optimal rates of N, P, and K, cultivar trials, weed management trials, cover crop trials, and intercropping trials. While there data was collected on maize growth, soil moisture, and weeds throughout the growing season for all of these. I did cover assessments and weeding, scouted for damage, and assisted in planting cover crop and intercropping trials. I worked closely with the Basotho students at the Maphutseng site, and advised them on methods of taking field measurements, including soil sampling techniques. In addition to working with them in the field, I helped the students with preparations to apply to graduate school. I also travelled to the National University of Lesotho where I met with potential graduate students and worked with them soil sampling and laying out field trials at the research site in Roma.

Suggestions and Recommendations

More site visits will be needed to monitor BR unit output in order to quantify carbon sequestration rates.