Comparative Effects of Different Soil Amendments on Soil Water Retention, Loss and Use. (S06-wu173342-Poster)

Authors:

- S.M.Wu - *University of California at Berkeley*
- K.Vernemann - *University of California at Berkeley*
- P.Gersper - *University of California at Berkeley*

Abstract:

Composts are intentively used as soil amendmends or fertilizers in organic farming. There were many studies on the impact of compost on soil physical properties. Few efforts have been done comparing the effects of diferent composts on soil water retention, loss and use, however. In this study composted chicken house manure(cm), yard waste compost(yw), vermi-compost(vc) were applied at three rates individually and combined with and without finely ground limestone to soils (Xeralfs and Xerorthents) to allow growing Merced ryegrass, lattuce(Lactuca sativa), broccoli(Brassica oleratcea) and mustard at Oxford greenhouse. Results showed that WHC% increased 5.28-7.0% compared to the original soils. Highest WHC obtained in cm- and cm+ca-amended soils. WHC% of yw+cm and vc+cm was higher than yw and vc applied alone. Monitoring electrical resistance (K ohm) in soils in pre- and rapid-growing periods showed the yw- and vc-amended soils lost more water by evaporation and evapo-transpiration. Irrigation water usage increased with increasing rates of compost application. Water-use efficiency was higher in cm-amended and combined with cm-amended soils due to the highest WHC% and fertilizers's effects on crops from the composted chicken house manure.

Corresponding Author Information:

Shanmei Wu
U. C. Berkeley/Nanjing Agricultural University
2020 Durant Ave., #209
Berkeley, CA 94704
People's Republic of China

phone: 254395892
e-mail: wusm99@yahoo.com

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