Laboratory calibration of a tipping-bucket device and sediment sampling tube for soil erosion plots.

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Date: 1993

Abstract:
The calibration of runoff and sediment measuring device for erosion plot studies is described. Volume and flow rate measurements were made by a tipping bucket device. Runoff and sediment samples were collected with a perforated sampling tube attached to the tipping bucket device. The device was calibrated under laboratory conditions for flow rates between 4 and 70l/min and for sediment conc. between 0 and 100g/l. the sample size collected by the sampling tube was around 1% of the total liquid and solid phases. The performance of the volume and flow rate measurements was fitted to a simple linear regression that gave a coefficient of determination of 0.99. Sediment sampling performance was significantly dependent upon flow rate and duration in a multiple linear regression with a coefficient of determination of 0.95.