

**Abstract****Calibration, Spatial Distribution and Rain Characteristics of Rainfall Simulation**  
Case study: Soil Conservation & Watershed Management Research Institute -Rainfall SimulatorM. Mahmoodabadi<sup>1</sup>, H. Rouhipour<sup>2</sup>, M. Arabkhedri<sup>3</sup> and H. Rafahi<sup>4</sup>

Rainfall simulation is normally used in the context of soil erosion studies and related processes. Recently, a rainfall simulator has been constructed in Soil Conservation and Watershed Management Research Institute (SCWMRI) Iran, which has considerable advantages in comparing with previous ones. The aim of this study was to calibrate the rainfall simulator, in terms of rainfall uniformity, drop size distribution, and calculating of drop velocity and its kinetic energy. Rainfall uniformity measurement carried out at three water pressures (0.01, 0.05 and 0.15 Mpa). The intensity distribution was determined under simulated rainfall both for a single and also for the combination of nozzles on the flume bed and compared with theoretical estimation of such distribution. Determination of drops size distribution performed using flour pellet method. The results showed that the behavior of the nozzles was similar. For combination of nozzles, the rain intensity varied from 35 to 125 mm h<sup>-1</sup>. The coefficient of uniformity was more than 90%. At a constant pressure, with the increasing number of nozzles, rainfall intensity and also mean drop diameter was increased. It was also concluded that while water pressure is increased, drop diameter decreased. Median drops diameter varied between 1.64 to 2.15 mm. It was concluded that the drops reach their terminal velocity which varied from 5.70 to 6.78 m sec<sup>-1</sup> and the kinetic energy was changed from 16.24 to 22.97 J m<sup>-2</sup> mm<sup>-1</sup>.

**Keywords:** *Rainfall simulation, Calibration, Rainfall uniformity, Drop size distribution.*

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