Sensitivity Analysis of an Ammonia Volatilization Model to its Input Parameters. (S01-wu114123-Oral)

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Abstract:

Ammonia volatilization is an important issue in agricultural production and environmental protection. Computer models were developed to predict ammonia volatilization from commercial fertilizers and manures applied to a field. In this research sensitivity analysis was conducted on a computer model simulating short-term ammonia volatilization from swine effluent applied to a field. Relative sensitivity (Sr) was employed to quantify the effect of uncertainty in input parameters on the amount of cumulative volatilization. The relative change in cumulative volatilization was most sensitive to soil pH (absolute Sr around 5), effluent concentration (absolute Sr =1), and air temperature (absolute Sr around 0.9). The absolute values of the relative sensitivity with respect to the rest of the input parameters were mostly below 0.3.

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