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281-22 Evaluation of N Loss By Volatilization From Urea Enriched With Additives.

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Due to the multiplicity of chemical and biological reactions that urea suffers when applied to soil, high N losses by volatilization can be found. The aim of this study was to evaluate fertilizer additives to reduce N-urea losses and increase its efficiency for agricultural crops. The treatments were defined as: coated urea with urease inhibitors (NBPT, Cu and B), sulfur-coated urea (S^0), commercial urea, and ammonium sulfate, applied at an equivalent to 120 kg N ha^{-1}, plus one control without fertilizer application. The experiment was carried on in a greenhouse, plots were composed of PVC columns with 15 cm diameter and 50 cm height, filled with an Oxisol with 18% clay. Moisture was standardized before fertilizer application at field capacity and during the experiment it was maintained above 80% of field capacity. To assess NH_3 volatilization it was installed a semi-open static camera at the top of the columns to capture volatilized ammonia described by Nonmik (1973). Measurements were taken in 13 times, on days 1, 2, 3, 4, 5, 7, 9, 11, 13, 15, 18, 22, 29 after fertilization. The determination of NH_3 volatilized was performed by flow injection analyse (FIA) method. Coated urea with urease inhibitors (NBPT, B and Cu) was more efficient controlling N loss, and significantly lower than commercial urea and urea coated with elemental S. Losses of N from ammonium sulfate was equivalent to control. According to this study it is clear that urease inhibitors are effective in controlling N-urea losses by ammonia volatilization and can improve fertilizer nitrogen efficiency.
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