Rate of Dairy Laggon Water Influence on Corn Yield, N Uptake and Soil Ammonium and Nitrate Concentrations. (S04-meyer153759-Oral)

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Abstract:

Few dairy lagoon water nitrogen (N) rate experiments have been conducted to assist dairymen in applying optimum amounts for corn production. A considerable proportion, well over one-half of the nitrogen may be in organic forms which add to the challenge of applying sufficient but not excessive nitrogen. The objective of this study was to establish exclosures that would prevent 1, 2 or 3 irrigations with lagoon water nitrogen and evaluate corn yield, N uptake and soil N responses. Nine-7.6 by 15.2 m exclosures were constructed to accommodate 4 N rates replicated 3 times in a single irrigation check planted to silage corn. Nitrogen application rates were 113 (+53), 134 (+113), 174 (+133) and 213 (+204) kg ha-1 inorganic (+organic). Soil at 0-15, 15-30, 30-60, 60-90 and 90-120 cm depths were taken 6 times before, during and after corn harvest for the determination of NH4-N and NO3-N. Whole plant samples were taken 5 times to monitor crop N uptake. Corn yields, leaf N concentrations and crop N uptake were not significantly different although trends were apparent with increasing rates of applied nitrogen. Soil profile inorganic nitrogen concentrations were similar for the four N rate treatments.

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