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Title	Preliminary Studies on the Evaluation of Human Urine as a Source of Nutrients for Vegetables in the Eastern Cape Province, South Africa
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Preliminary Studies on the Evaluation of Human Urine as a Source of Nutrients for Vegetables in the Eastern Cape Province, South Africa

Efforts are underway to introduce urine diversion toilets in South Africa as part of a program to encourage ecological sanitation. One of the goals of ecological sanitation is to promote the reuse of human excreta in agriculture as a way of closing the nutrient loop. There is, however, no locally available information on the fertilizer value of human urine. This study was set up with a goal of getting preliminary indications of the fertilizer value of urine using spinach and cabbage as test crops. The methodology used by Peter Morgan in a similar study in Zimbabwe was followed. Urine obtained from male students at the University of Fort Hare was diluted three times and used in the study. Cabbage and spinach seedlings were transplanted in 12 kg pots before being subjected to relevant treatments which were: 1. Water alone 2. Recommended fertilizer rate 3. Urine applied once a week 4. Urine applied twice a week and 5. Urine applied three times a week. Urine application was stopped after 5 weeks at which time the N added through urine amounted to 640, 1068 and 1602 kg N/ha for urine applied once, twice and three times a week, respectively. Spinach was harvested after 7 weeks of growth while cabbage was harvested after 11 weeks. Results showed that urine applied once or twice a week resulted in significant yield increases relative to the control. However, the application of urine three times a week significantly depressed both spinach and cabbage yield due to increased salinity in soils. Cabbage was more severely affected by the salinity than spinach. Differences in the response of the two vegetables to higher levels of urine appeared related to the fact that spinach could tolerate higher levels of sodium in its tissues than cabbage. Tissue nitrogen levels in both spinach and cabbage increased with increasing rates of urine application suggesting that nitrogen was largely responsible for the observed fertilizer effect of urine. Experiments are under way to determine optimum rates of urine application for vegetables based on the nitrogen content of urine.