

# Human urine as a safe, inexpensive fertilizer for food crops

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These cabbage plants were fertilized using human urine. Credit: Courtesy of Helvi Heinonen-Tanski, University of Kuopio, Finland

Researchers in Finland are reporting successful use of an unlikely fertilizer for farm fields that is inexpensive, abundantly available, and undeniably organic -- human urine. Their report on use of urine to fertilize cabbage crops is scheduled for the Oct. 31 issue of ACS' *Journal of Agricultural and Food Chemistry*.

Despite the 'yuk!' factor, urine from healthy individuals is virtually sterile, free of bacteria or viruses. Naturally rich in nitrogen and other

nutrients, urine has been used as fertilizer since ancient times. Urine fertilization is rare today. However, it has gained attention in some areas as farmers embrace organic production methods and try to reduce use of synthetic fertilizers.

In the new study, Surendra K. Pradhan and colleagues collected human urine from private homes and used it to fertilize cabbage crops. Then they compared the urine-fertilized crops with those grown with conventional industrial fertilizer and no fertilizer.

The analysis showed that growth and biomass were slightly higher with urine than with conventional fertilizer. There was no difference in nutritional value of the cabbage. "Our results show that human urine could be used as a fertilizer for cabbage and does not pose any significant hygienic threats or leave any distinctive flavor in food products," the report concludes.

Source: ACS

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