Dairy Wastes Land Application Strategy for Irrigated Forage Production. (S11-feng190340-Poster)

Authors:

- G.Feng* - *University of California at Riverside*
- A.Chang - *University of California at Riverside*
- J.Letey - *University of California at Riverside*

Abstract:

Manure produced in California dairies is generally applied to adjacent forage crop land. Most dairies grow corn silage in summer and forage in winter. It is imperative for environmentally sustainable management of dairies to develop dairy waste management strategies that could improve forage production and ensure that impacts on groundwater quality are minimized. ENVIRO-GRO model is used to assess and develop land application strategies for dairy waste. The effects of different solid and liquid manure management practices on irrigated crop N uptake, yield, and leaching of N were simulated. The management options were compared. A maximum, environmentally safe application rate of dairy wastes was identified for a double-cropping system. 100% yield was achieved when irrigation and N were applied to just meet crop water and N requirements. High irrigation caused more N leaching and resulted in more reduction in yield. A high utilization of N by crops can be achieved when manures are applied at a time when crops can absorb the mineral-N and at rates that do not exceed crop needs (after manure N has been converted to nitrate N in the soil). The rate of mineralization is a primary factor controlling the availability of manure nitrogen.

Corresponding Author Information:

Guanglong Feng
University of California at Riverside
Dept. of Envi. Sci., Univ. of Calif. at Riverside
Riverside, CA 92521

phone: (909)787-4653
fax: (909)787-3993
e-mail: fenggl@mail.ucr.edu

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