Improved Dairy Manure Nutrient Management Systems for Irrigated Forage Crops. (C07-pettygrove152317-Oral)

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Abstract:

Dairy producers in the arid western US commonly collect and store up to 80% of manure in ponds as a dilute (total solids usually <2%) liquid and apply it to crops via furrow and border check irrigation systems. Management constraints differ from those associated with solid or slurried manure. At 11 dairies in California's San Joaquin Valley ranging in size from 350 to 1900 milk cows, improved techniques including manure nutrient analysis, liquid manure flow measurement with electromagnetic meters, and other crop and irrigation system improvements were demonstrated on single fields or portions of fields in a silage corn-winter forage double crop rotation. The average commercial fertilizer use before the project for eight dairies where data were available was 167, 35, and 42 kg/ha of N, P, and K, respectively. Two years later, this had decreased to an average of 22, 0, and 0 kg/ha of fertilizer N, P, and K, respectively. The reduction in commercial fertilizer use averaged 143 dollars/ha in value. However, to adopt the improved methods on whole farms would in some cases require costly changes to the manure handling and storage facilities and the irrigation system.

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