Applying knowledge to improve water quality
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# Dry Litter Waste Management System for small-scale piggery in the western Pacific

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## Abstract Text:

With the regional goal to protect water quality, Pacific Land Grant college cooperators introduced to island swine farmers an environmentally sound and culturally appropriate waste management system, the modified dry litter system. In this system, the hogs are housed in sloping pens and dry litter or bedding which move down slope by gravity to the back of the pens where they are allowed to collect in a waste alley for composting or direct application onto soils for growing crops. Various slope ratios and types of dry litter have been tested to help determine the effectiveness of the system and the quality of the composted product. A 10% slope for a 4m X 3m pen was recommended and the mixture of wood chips plus shredded coconut husks revealed significant results In terms of reduced labor, reduced need for water and reduced negative impact of hog wastes. Four demonstration centers have been installed across the region thus far. Two exist in the island of Tinian and two in the Republic of Palau. All demo sites demonstrated key features of the dry system, such as nipple automatic waterer slope flooring, waste alley, a raincatchment, roof overhang, and hog panels. The technology has evolved through on-farm experimentation and collaboration between farmers and extension professionals. To date, three new dry litter piggerries are in the planning stage in Guam, Tinian, and Saipan. Furthermore, regional collaborators have conducted research on Leptospira spirochete survival and stress related to animal waste composting to further improve the system as a safe and effective means of processing animal waste into a desirable resource. Just recently, USDA –NRCS Pacific Basin joined us in expanding the benefits thru adoption of the dry litter system to one of their Best Management Practices (BMP's) by offering to cost-share to construction of the system via their Environmental Quality Incentive Program (EQIP) of which one farmer/applicant on Tinian has already been approved.

## Impact Statement:

Island piggeries may pose a threat to water resources due to nutrient run-off, fecal contamination, and the spread of zoonotic diseases thru contamination by leaching into underground water aquifers, island streams and coastal waters. In many island territories the contamination of water resources has resulted in the spreading of diseases and even deaths of island residents. With the dry litter waste management system, farmers are now given alternatives to safely manage animals while promoting a healthy and clean environment through the sustainable utilization of animal waste and carbon materials as compost.