

Alternative Waste Management System to Swine Operations in the American Pacific

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P.I.: Dr. Allan Castro Sabaldica

Co-P.I.: Lawrence Duponcheel

Collaborator: Gilbert Macaranas



PROBLEM?

"The impact of animal waste on the environment is a growing problem, not only in atoll countries but also in other Pacific Island countries."

- The 14th meeting of the Permanent Heads of Agriculture and Livestock Services In the Pacific (PHALPS) in May 2001

Conventional Spray out systems require copious amounts of Water and pose a threat to underground and surface water resources



Current Waste Management System in the Pacific



Current Waste Management System in the Pacific



Directly contaminating the streams (American Samoa)

Current Waste Management System in the Pacific



Uncontrolled flow of manure around the perimeter of the piggery (Tinian)

Current Waste Management System in the Pacific



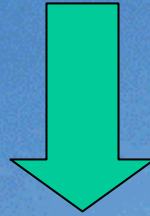
Waste effluents directly leading to a cesspool



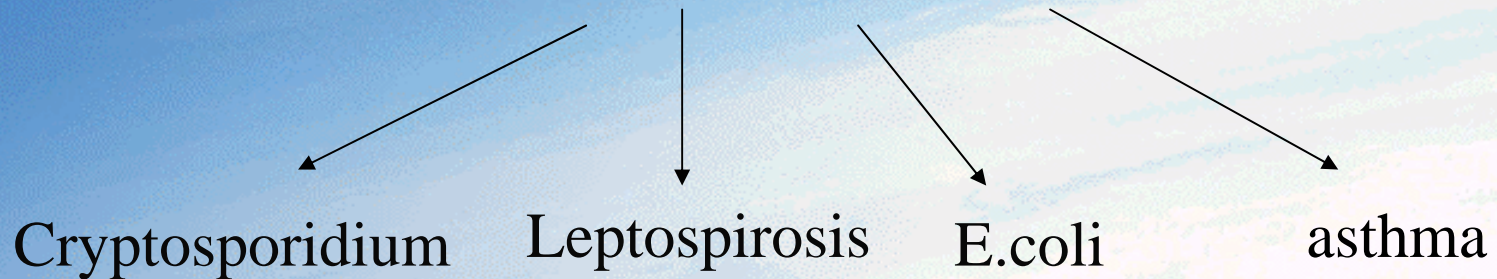
Impact on the Animal

- **Animal Health**
- **Production**
- **Life and Meat quality**
- **Animal Behavior**

Animal Waste contaminants



poses public health risk



Impact on Public Health

REASONS?

Lack of effective animal waste regulations to follow within the area for small scale operation

Existing waste management system are applicable to commercial operation and not to small-scale subsistence farmers

Lack or limited education on the benefits and effects of manure to the environment, animal and the community



Marianas Dry Litter Waste Management System















The Dry Litter system requires no water.
Pigs are comfortable in their bedding

Pigs can't wait for their chips.
A soft bedding improves the pigs environment which
Helps to keep them happy and healthy



Pig activity turns and aerates the chips promoting the Decomposition of waste materials while greatly reducing odor as well



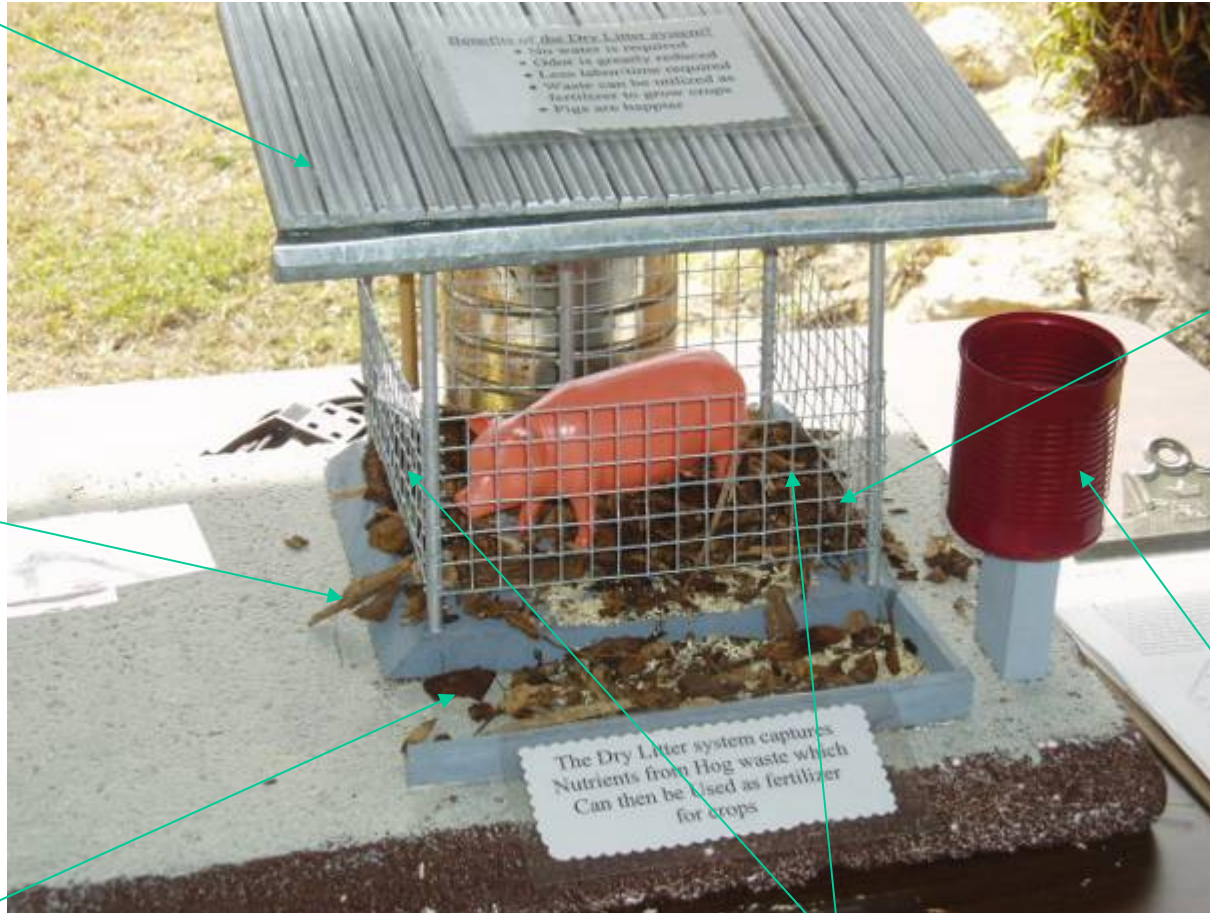


Key Features of the Marianas Dry Litter System

Roof
overhang

Slope
Flooring

Waste
Alley



Nipple
Waterer

Rain
Catchment

Hog panels



Chipped organic materials are now readily available
On Saipan at the Transfer Station.





Composted waste materials along with the chipped wood and coconut
Make for a wonderful soil amendment-improving soil quality
And fertility







Less moisture, therefore less odor, less pests (flies) – healthier pigs, better productivity











Benefits of the Marianas Dry Litter System



Benefits to the Farmers

Reduced labor and
time invested

Reduced water bills

A valuable by-product
compost

Compost improves
plant productivity
recovering cost of
feeds

Benefits to Pigs

Pigs are happier and healthier

Pigs stay in clean and grow well

Pigs are able to perform natural activities like rooting reducing stress





Benefits to the Community

Reduced demand for water

Reduced exposure of pathogens from animal manure to ground and surface water resources

Reduced odor, pest and fly problems

Small Scale Livestock Waste Management Practices for Pacific Islands

Don J. Williams, Don E. Anderson, Loretta Chapman, Alan S. Williams, and Linda Chen
University of Hawaii, Pacific Island College

CURRENT CONDITIONS

Most small scale livestock operations in the Pacific Islands are unregulated and unmonitored. They often lack proper waste management practices and can contribute to environmental degradation and public health issues.



PORTABLE TOILETS

Portable toilets are a common method for managing livestock waste. They are often used in small scale operations and can be a cost-effective way to manage waste.



REFUSE DISPOSAL

Refuse disposal is a common method for managing livestock waste. It involves the collection and disposal of waste in a designated area.



PROBLEMS



COMPOSTING

Composting is a common method for managing livestock waste. It involves the decomposition of waste into a nutrient-rich soil amendment.



EDUCATION/OUTREACH

Education and outreach are important for improving livestock waste management practices. They help to raise awareness and provide information on best practices.







Profitable & Sustainable Livestock Manure Management Workshop

Protection of Water Resources / Environmental Regulations



Carl Evensen
Environmental Quality Specialist

UH Manoa - Tropical Agriculture & Human Resources









FUTURE ACTIVITY

Preparation for the Regional Workshop and Project Demonstration with the University of Hawaii in the

- Commonwealth of the Northern Mariana Islands
- Republic of Palau
- FSM (Yap, Pohnpei, Chuuk and Kosrae)
- Republic of Marshall Islands
- American Samoa

Thank You very Much!!!

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Division of Environmental Quality

Natural Resource Conservation Service

Agricultural Development in the American Pacific

Marianas Resource Conservation and Development Council



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