

Pigs we can live with – Keeping culture in American Samoa

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The Issue

- Roaming Pigs and untreated waste from pig pens were discharging high levels of nutrients and Bacteria into streams.
- In 2003, a severe case of Leptospirosis (a dangerous but treatable illness carried by pigs) was identified.
- A 2004 CDC study⁶ indicated 17% of adults in American Samoa are carriers of leptospirosis bacteria
- American Samoa's relatively pristine coral reefs are heavily impacted by the nutrient loaded waste discharged from piggeries.
- In 2006, the American Samoa Environmental Protection Agency (AS-EPA) initiated a piggery compliance program to establish and regulate piggery guidelines.



A Piggery Discharging waste directly into a stream.

New Piggery Designs

- Laws against roaming pigs were enforced. Pigs were required to be within a covered structure at least 50 feet (15m) away from streams and dwellings
- AS-EPA developed the following piggery waste management systems to properly treat animal waste and convert pig manure into a safe odorless agricultural product, compost
- Dry Litter (see photos to the right)
- Wash Down (see photos below)
- The standard designs contain features such as:
 - Dry litter collections alleys and compost bins
 - Solid Separator trays and septic systems
 - Geo-textile filter bags and liquid effluent drip irrigation
 - Septic systems and compost bins to treat pig waste
 - Water on demand nipple systems to reduce water use
 - 6% slope to help flow of wood chips and pig waste
- Funding to assist farmers with new piggery construction was obtained through EQIP⁸



The Dry-Litter Pig Pen System



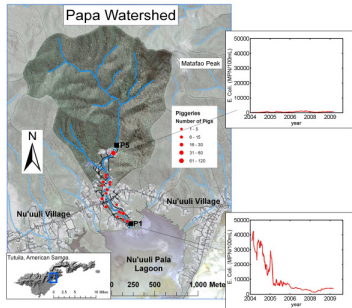
Outreach and Enforcement

- An island wide GIS database of pig locations was created in 2006
- At the same time, outreach activities were held in communities to raise awareness of the issues.
- Warnings and citations were issued to piggery owners in violation of piggery guidelines.
- A demonstration project showcasing the standard piggery designs was constructed at the Land Grant College.
- Some piggery operations came into compliance, some closed voluntarily while others were forced to close by the legal system.
- There are still many non-compliant piggeries being processed through the court system.



Results

- Many pig operations adopted the standard designs and came into compliance with funding assistance from the USDA Environmental Quality Incentive Program (EQIP).
- Extensive education activities throughout the territory resulted in many voluntary closures.
- Bacteria levels in streams have dropped by at least 90% during the education and enforcement activities.
- Initial discontent at AS-EPA for enforcing piggery laws has now manifested into community support for improving environmental and sanitary conditions.
- Piggery owners that adopted the standard designs are now selling composted pig manure to local farmers.
- The Public Health Service (PHS) donated testing kits to the Hospital to test for Leptospirosis.
- In 2006 there were **8,370** pigs in American Samoa.
- In 2010 there were **3,500** pigs in American Samoa, approximately **1,000** of which were in compliant piggeries.



The Wash-Down (Haka) System



Solid Separator tray collect solid waste for composting



Filter tanks with geotextile bags collect solids



Treated liquid waste in drip feed into a leach field

Summary

- An environmental management program focussing on the reduction of untreated pig waste (nutrients and bacteria) is currently underway in American Samoa.
- A follow up sero-prevalence conducted by University of Queensland is currently being analysed.
- The composting piggery designs have proved successful and are currently being adopted by other tropical island countries.
- Education and enforcement is a critical component and must be tailored to individual situations.
- The first Dry Litter Technology Summit is being held in American Samoa February 22-25, 2011.

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⁶Winger, 2004. Leptospirosis: A Sero-prevalence Survey on American Samoa, Centers for Disease Control Report

⁸EQIP – USDA, NRCS Environmental Quality Incentives Program