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## ATD Waste Systems Inc.

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# How the ATD System Helps Protect the Environment

## Overview

The ATD Manure Treatment System is designed to minimize the impact of manure management on the farm, local environment, and the environment in general, while offering the added benefit of a saleable byproduct: an organic, consistent analysis, fertilizer pellet.

ATD Manure Treatment System is part of the solution to many known environmental and health problems that are a concern to hog farmers and the community in which they operate.

## Human Health

### *Problem:*

The large volumes of animal manure generated are an environmental and health concern because of the risk of food-borne and water-borne transmission of bacterial pathogens and parasites to humans. In the farm environment, direct and indirect pathways of pathogen transport from manure to food and water exist. The application of raw manure to soil growing fresh produce is a direct route of contamination <sup>1</sup>.

### *ATD Solution:*

The ATD Manure Treatment System produces a dry, nutrient loaded pelletized fertilizer as a byproduct of manure treatment. Lagoons are not used, nor are digesters. Lagoons may leak and leach harmful bacteria to surface and ground water, they also emit greenhouse gases. Raw manure and/or irrigation of crops with liquid manure

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expose food crops and ground water to possible contaminants. The dry pellet fertilizer produced by the ATD system dramatically reduces the risk of leaching and contamination of food crops and ground and surface water. ATD manure treatment also reduces greenhouse gas emissions by 65%.

*Problem:*

Exposure to gas emissions and moulds from liquid manure processing in under-barn pits, and outdoor lagoons are thought to be the cause of some respiratory conditions in swine farm workers.

*ATD Solution:*

With the ATD system, manure removal to an enclosed on-farm processing facility, occurs daily. The build up of manure in-barn does not occur, so gas emissions, and harmful moulds are reduced.

*Problem:*

Anaerobic management of hog waste produces many gases, the most harmful of which are methane, hydrogen sulfide, ammonia, and carbon dioxide. Hog farm workers and people living in communities near hog farms have reported health problems, which scientists believe, may be associated with exposure to these gases.

*ATD Solution:*

The ATD Manure Treatment System eliminates many of the common problems associated with long-term storage of manure. Eliminating the lagoon and liquid manure application goes a long way to solving

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odour problems (a common source of public complaint) and greenhouse gas emissions, which are reduced by over 65%.

## **Water and Air**

### *Problem:*

Movement of nutrients in excess amounts from manure and other byproducts to water and air can cause significant environmental problems. These nutrient losses to the environment can occur at the production site, during storage and during and after field application <sup>2</sup>.

Ammonia emissions appear to have the greatest potential for adverse environmental and health impacts, while generation and transport of malodorous compounds provoke the greatest public concern <sup>2</sup>.

### *ATD Solution:*

ATD Manure Treatment System captures 100% of the nutrients within a dry pelletized fertilizer. No nutrient losses occur and because lagoons are eliminated, greenhouse gas emissions are reduced drastically (+65%). The dry fertilizer pellet byproduct causes no storage safety concerns, and is easy and safe to transport.

### *Problem:*

Surface water that supplies municipal systems or is used for crop irrigation can be indirectly polluted by runoff. Water-borne transmission of *Cryptosporidium parvum* is a concern because the parasite can remain viable for months in natural waters and is resistant to many disinfectants <sup>1</sup>.

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*ATD Solution:*

ATD Manure Treatment System replaces lagoons and liquid manure application to crops, both of which are cited as a possible source of pollutant leaching to surface and ground water. The ATD system produces a dry fertilizer pellet (a byproduct of ATD manure treatment), which dramatically reduces the risk of runoff and leaching. The ATD system also produces a clean water effluent for recycling in the barns, year round. Biological treatment does not attempt this standard and often relies on allowing nitrogen to escape in the form of free nitrogen, ammonia or nitrous oxide.

*Problem:*

Nitrogen and phosphorus from manure and other sources have been associated with algal blooms and accelerated eutrophication of lakes and streams <sup>2</sup>.

*ATD Solution:*

Gases are reduced by 65% with the ATD process, and all nutrients are captured as a byproduct: a dry pellet fertilizer. Dry pelletized fertilizer results in a dramatic reduction in leaching risk and gas emission risks associated with liquid manure processing and application to land.

1. Food Safety Research Information Office, United States Department of Agriculture, <http://www.nal.usda.gov/fsrio/research/fsheets/fsheet03.htm>

2. U.S. Department of Agriculture, [http://www.ars.usda.gov/research/programs/programs.htm?np\\_code=206](http://www.ars.usda.gov/research/programs/programs.htm?np_code=206)