

WASTE

Where there are animals, there is animal waste, and as the growth of industrial farming concentrates thousands of animals on increasingly fewer farms, it produces massive amounts of animal waste on relatively small plots of land. When too much waste is produced in one place, there is no safe, cost-effective way to use it productively or dispose of it. While government regulation and better waste management practices can make a difference and should be encouraged for existing farms, the problem of livestock waste will continue as long as we rely on concentrated industrial farms to produce our food.

MOUNTAINS OF MANURE

At farms where animals are allowed to graze on pasture, their manure is excreted directly onto the land, serving as a fertilizer and recycling nutrients back into the soil. On industrial livestock farms, animals drop their manure where they live. From there, it must be cleaned out, transported, and stored. The USDA estimates that more than 335 million tons of “dry matter” waste (the portion of waste remaining after water is removed) is produced annually on farms in the United States – 100 times more manure than the amount of human sewage sludge processed in U.S. municipal wastewater plants. It is then shipped to neighboring farms, where it is sprayed onto fields as fertilizer. This practice is not only harmful to the soil, but can result in contamination of human drinking water and lead to serious public health problems.

ANIMAL WASTE, THE ENVIRONMENT, AND HUMAN HEALTH

People sometimes believe that animal manure is harmless, but in truth, it can be quite hazardous. Factory livestock facilities pollute the air, releasing over 400 types of gases, mostly from the large amounts of manure they produce. The principal gases released are hydrogen sulfide, methane, ammonia, and carbon dioxide—dangerous air pollutants that threaten both the environment and human health. Nitric oxides are also released in large quantities from farms through manure application, and are a leading cause of acid rain.

The risks of manure lagoons, man-made pools that hold millions of gallons of liquid waste, include leakage, overflows, and poorly regulated discharge of waste posing a direct threat to the quality and safety of soil and water. A 2006 report for the U.S. Geological Survey documented over one thousand spills and dumps of animal waste in the ten Midwestern states it surveyed over the course of three years. Manure from leaky lagoons or saturated farm fields has also

been known to enter public water sources and infect humans. For example, a study of waterborne disease outbreaks from 1986 to 1998 conducted by the Centers for Disease Control determined that in every case where the pathogen could be identified, it most likely originated in livestock.

Among the many nutrients usually present in high concentrations in animal waste are phosphorous and nitrogen, which through decomposition, is converted to a water soluble form (ammonium nitrate). When ammonium nitrate is mixed with water, nitrates can leach into groundwater systems, polluting them. According to the Environmental Protection Agency (EPA), drinking water with nitrate concentrations above ten parts per million can cause developmental deficiencies in infants and death in severe cases due to oxygen deprivation. Nitrates introduced into the body through polluted water significantly reduce the blood's oxygen carrying capacity, depriving the body of oxygen. High nitrate concentrations are also believed to have caused miscarriages and possibly cancer.

WHEN AMMONIUM NITRATE IS MIXED WITH WATER, NITRATES CAN LEACH INTO GROUNDWATER SYSTEMS AND THREATEN THE WATER QUALITY.

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Animal waste is often stored directly beneath the barns in which livestock live and animals commonly die from poor ventilation that allows for the buildup of toxic gases inside confinement facilities. What's more, manure lagoons have been known to claim the lives of farm workers. Between 1992 and 1997 at least twelve workers died from asphyxiation and drowning while trapped in manure lagoons. The gases in livestock facilities also pose other risks; for example, methane is highly flammable, and if not vented properly from manure tanks it can cause explosions.

REGULATION AND TECHNOLOGY IN MANAGING WASTE

Until recently, there has been very little regulation of animal waste. Federal law changed in 2002 to require virtually all confined animal feeding operations (CAFOs) to apply for National Pollutant Discharge Elimination System (NPDES) permits for their waste. In 2005 the rule was

revised requiring only CAFOs that discharge waste into streams, rivers, or lakes to apply for a permit. The EPA has the authority to prosecute those who discharge animal waste illegally under the Clean Water Act, but these cases are brought infrequently.

DID YOU KNOW?

- ☉ Dairy cows in confined feeding operations throughout the United States produce more than two billion pounds of manure nitrogen (a natural fertilizer in small amounts and a major pollutant in larger quantities) per year.
- ☉ The most recent available Census of Agriculture data shows that there were almost 95.5 million cows and calves in the United States in 2002. There were also about 60.4 million hogs and pigs, each producing waste every day.

What You Can Do...

Sustainable, pasture-based systems allow animals to distribute their waste in amounts that the soil can absorb, without using large quantities of water for washing or fuel to power trucks for transportation and spraying. By

shopping at small, local sustainable farms and supporting pasture-based methods of waste management, we can all support healthier and more environmentally-friendly farming.



To find sustainably raised food near you visit www.eatwellguide.org.

Find more detailed information about waste on our website at www.sustainabletable.org/issues/waste.

