Safe Manure Transport: A Crucial Aspect of Sustainable Agriculture

By Dan Andersen

In the world of agriculture, the safe transportation of goods plays a pivotal role in ensuring the well-being of the farmers and the safety of our roads and environment. One aspect that often goes overlooked is the road safety of manure transport. This critical element of farming is essential for maintaining the health of our soils and crops. Still, it must be carried out with the utmost care to prevent accidents and environmental hazards.

Manure is a valuable resource for agriculture, rich in nutrients that enhance soil fertility and promote crop growth. However, getting this nutrient-rich material from the farm to the fields can present unique challenges. Transporting manure safely is crucial to maximize its benefits while minimizing risks.

Safety Measures for Manure Transport

Secure Loading: Proper containment and securing of manure on the vehicle or trailer is paramount. This prevents spillage, which can lead to accidents and soil and water contamination. For solid manure, consider tarping loads where appropriate or loading in ways that minimize spills. Baffles play a crucial role in safely transporting liquids. Baffles are internal partitions or barriers strategically placed within the tank to manage the fluid's movement and behavior, including improved braking and handling, and reduced risk of surging.

Regular Vehicle Maintenance: Routine inspections of transport vehicles are necessary. Brakes, lights, tires, and suspension systems should be in good working order to ensure safe transportation. Check periodically while hauling to ensure these items remain clean and functioning.

Signage and Communication: Displaying appropriate warning signs on the vehicle, such as "Caution: Manure Transport." Effective communication within the transport team is essential for a smooth and safe journey.

Load Distribution: Manure should be evenly distributed to maintain vehicle stability. Proper weight distribution prevents swaying or tipping during transit.

Speed and Following Distance: Adhering to speed limits and maintaining a safe following distance gives the driver ample time to react to sudden stops or maneuvers.

Weather Awareness: Adverse weather conditions like rain or snow require extra caution. Slippery road surfaces can make driving hazardous. This includes being attentive to periods where the sun's location may severely limit visibility.

Route Planning: Choosing routes that avoid steep hills, sharp turns, or narrow roads minimizes risks associated with challenging terrain. In some cases, challenges are unavoidable.

Protecting the environment is a shared responsibility. When transporting manure, it's essential to prevent spills into waterways. Using tarps or covers and avoiding transport during rainfall can help mitigate these risks. Familiarizing yourself with local and state regulations related to manure transport is crucial. Compliance with these laws ensures that you are contributing to the safety of our roads and environment.

Remember that safe manure transport benefits the farming community and our entire ecosystem.
Stay safe on the roads, and let's continue responsibly nurturing our crops and our environment.

Safe Handling and Management of Manure Gas: Protecting Lives and Livelihoods

By Dan Andersen

Manure is a valuable resource in agriculture, providing essential nutrients for crops and soil health. However, one aspect of manure management that often goes overlooked is the potential danger posed by manure gas emissions. When not appropriately handled, manure gases can be harmful or even fatal. In this article, we will explore the risks associated with manure gases and provide practical tips on ensuring the safety of farmworkers and livestock.

Understanding Manure Gases:

Manure gases are produced as a natural byproduct of the decomposition of organic matter in manure. The three leading gases of concern are:

1. Ammonia (NH3): Ammonia is a pungent gas that can irritate the eyes, nose, and throat. In high concentrations, it can cause respiratory problems and even be fatal.
2. Methane (CH4): Methane is flammable and can form explosive mixtures in confined spaces.
3. Hydrogen Sulfide (H2S): Hydrogen sulfide is a colorless gas with a distinctive "rotten egg" odor. It can cause respiratory distress and loss of consciousness even at low concentrations. It is the most dangerous gas during manure agitation and application.

Common Manure Gas Risks:

1. Pit and Lagoon Gas: Manure storage pits and lagoons can trap and concentrate gases. Entering these spaces without proper ventilation and safety precautions can lead to suffocation or exposure to toxic gases.
2. Agitation and Pumping: Agitating or pumping liquid manure can release a burst of gases. Workers near these operations should be cautious to avoid inhalation.
3. Spreading: When manure is spread on fields, gases can be released into the air. Workers and nearby residents should be aware of potential exposure during spreading activities.

Safety Measures:

1. Proper Ventilation: Ensure good ventilation in manure storage areas. Use exhaust fans, vents, and openings to allow gases to escape. Check to ensure that pit fans are operating appropriately before starting manure removal. Where possible use pump-out curtains on pump-outs to prevent this area from becoming an air intake for the building. Learn more about ventilation practices in [Hydrogen Sulfide Safety – Barn Ventilation at Cattle Facilities](http://example.com) and [Hydrogen Sulfide Safety – Swine Barn Ventilation](http://example.com).
2. Gas Monitoring: Install gas monitors in confined spaces and areas prone to gas accumulation. Regularly test for gas concentrations and ensure alarms are functional. More information about hydrogen sulfide monitors can be found in [Hydrogen Sulfide Safety – Monitoring](http://example.com). Learn more about bump testing hydrogen sulfide monitors in this short video.
3. Personal Protective Equipment (PPE): Provide workers with appropriate PPE, including respirators, goggles, and gloves. Ensure they are trained in their proper use.
4. Safe Entry Protocols: Implement strict protocols for entering confined spaces, including proper training, lockout tag-out, and equipment checks.
5. Aggressive agitation increases gas emission rates, especially surface agitation, roster tailing, or agitating towards pillars or corners, which may cause excessive manure splashing. More information about safe agitation practices can be found in [Hydrogen Sulfide Safety – Manure Agitation](http://example.com).

7. Education and Training: Continuously educate coworkers about the dangers of manure gases, safety measures, and response plans.

Manure gases are a potentially deadly threat on farms. By understanding the risks, implementing safety measures, and prioritizing proper training, we can protect the lives and livelihoods of agriculture workers. It is our responsibility as stewards of the land and livestock to ensure that manure management is efficient and safe for everyone involved.

Figure 1: Adding a pump-out curtain around the agitator can block some of the pit air from reaching the pump operator.

Talkin’ Crap Podcast

Are you looking for listen this fall? Check out our newest installment of Talkin’ Crap, our manure podcast. We go through safety tips related to manure gases and road safety, then discuss work Luke Soko is doing on summarizing anaerobic digester performance differences between covered lagoons and heated digesters to help understand which may be right for different farms.

Events

October 20, 2023, 1:30 pm
Models & Tools to Improve Manure Management Part 2 webinar

November 6-8, 2023
Ames, Iowa
Anaerobic Digestion on the Farm Conference

November 8, 2023, 5:00 pm – 8:00 pm
Cedar Rapids, Iowa
Women in Ag: Water Quality Workshop

December 4-5, 2023
Altoona, Iowa
Integrated Crop Management Conference

March 20, 2024, 5:30 pm – 7:30 pm
Hiawatha, Iowa
Women in Ag: Tile Drainage Workshop

The Manure Scoop

In this month’s Manure Scoop, I discuss fall and spring manure application options, reasons to consider both, and the role timing has in optimizing crop success.