

Why horse manure is a problem...

Production of manure and increased erosion problems caused by horses are a source of concern due to its potential impact on water quality.

Agricultural statistics released by New York's Department of Agriculture and Markets in June 2001 show that New York has a horse population of 168,000. An average horse weighing 1000 pounds will produce between 50 to 55 pounds or 2 cubic feet of manure daily. Annual manure production of an average horse ranges between 8 to 9 tons of manure. The current population of 168,000 horses in New York produce a whopping **1,344,000 to 1,512,000 tons of manure annually!!**

The problem....

If proper management practices are not utilized, nutrients from this manure could have a significant impact on water quality. The quality of water has a direct impact on our lives. Contaminated water will be unsuitable for drinking purposes, wildlife and aquatic habitat, and use for recreational purposes. Runoff of water from rain and melting snow can pick up contaminants such as soil particles, nutrients (phosphorus and

nitrogen), pathogens, and bacteria from manure and carry them to the nearest body of water like a pond, lake, or stream. Leaching of nutrients into the ground water can also end up in wells and other bodies of water. Contamination caused by runoff or leaching is called nonpoint source pollution or NPS.

Impact of manure on aquatic life...

One ton of horse manure with bedding contains approximately 13 pounds of nitrogen, 5 pounds of phosphorus, and 13 pounds of potassium. When nitrogen and phosphorus contained in manure are transported to lakes, streams, rivers, or ponds these nutrients will fertilize aquatic plant life and accelerate their growth. These plants deplete oxygen levels in the water, reducing the amount of oxygen available for aquatic life such as fish. Excessive algae blooms are another problem associated with large amounts of nutrients in the water and deplete oxygen. Presence of excess nutrients in the water can also reduce the amount of oxygen in the water due to the increased growth of bacteria found in the water, turn the water murky green, and produce an unpleasant odor. Direct entrance of manure into water bodies can cause fish kills, because of oxygen starvation that is caused by increased biological plant oxygen demand.

Health issues in humans...

Entrance of nitrogen into drinking water supplies such as wells and reservoirs can cause health problems if the level of nitrogen is too high. Excessive nitrogen in drinking water can cause Methemoglobinemia, known as Blue Baby Syndrome. It is a condition affecting infants where nitrite is formed from nitrates in the stomach and interferes with the blood's ability to carry oxygen. There have also been some studies conducted that suggest excessive nitrates can cause stomach cancer, birth defects, an enlarged thyroid gland, high blood pressure, and lymphoma.

Horse manure also contains pathogens that contaminate water and make it unfit to use for drinking and recreation. Pathogens found in horse manure include: viruses, parasites, and bacteria such as C. Parvum, Giardia, and E. Coli.

Erosion issues...

Erosion is another problem that can degrade water quality in surface water bodies. Allowing horses free access to streams causes the collapse of stream banks and adds sediment to the stream. Areas stripped of vegetation by grazing horses are more susceptible to erosion and not only allow

surface runoff of soil, but also cause increased runoff of manure which will allow sediment and nutrients to enter and contaminate water bodies. Other areas of concern are high traffic areas, barnyards, and feeding areas because they too, contain little or no vegetation.

Finding a solution...

If proper management techniques are not utilized, horses and their manure can have a large impact on the quality of water in New York. The Natural Resources Conservation Service or NRCS can offer assistance to protect, maintain, and improve soil, water, air, plant, and animals. NRCS can also provide assistance and information on Best Management Practices (BMPs) for manure and erosion. BMPs that can help improve water quality include: composting, stream bank fencing, installation of buffer strips, pasture management, use of rotational grazing, vermicomposting, establishment of heavy use protection areas, and many other valuable conservation practices. For more information on how to improve water quality by utilizing Best Management Practices, contact your local NRCS office.



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Water Quality Concerns and the Equine Industry



Information About Horses and Their Impact on Water Quality