

# ‘Sludge’ is Health Hazard for Lamas

by Jo Overbey

*Graphs and images reprinted with permission from [www.sludgefacts.org](http://www.sludgefacts.org)*

**B**oyceland Dairy, in Augusta County, Georgia, made the devastating decision in 1986 to accept sewage sludge from the city of Augusta to be spread upon their fields. By 1997, this formerly award-winning and renowned dairy of over 1,300 cows was experiencing a herd mortality rate of nearly 30 percent, and a drop in milk production from an average of over 2,500 gallons per year to less than 1,000. This thriving family business was on the verge of being forced into liquidation, thus ending a family’s traditions, way of life, and livelihood.<sup>(1)</sup>

Other farms throughout the country are experiencing significant reductions in crop production following the application of sludge to their fields, as well as increased health and reproduction problems in the animals which are fed silage/hay which has been grown there.

## Fighting Back

In 2007, Nutri-Blend, Inc., one of five large national sludge-hauling corporations, is attempting to open Campbell County, Virginia to the dumping of “biosolids.” But an informed group of local citizens is fighting back.

Today, “sewage sludge includes anything that is flushed, poured, or dumped into our nation’s wastewater system — a vast toxic mix of wastes collected from countless sources, from homes to chemical industries to hospitals and mortuaries. The sludge being spread on our crop fields is a dangerous stew of heavy metals, industrial compounds, viruses, bacteria, drug residues, and radioactive material. In fact, hundreds of people have fallen ill after being exposed to sewage sludge fertilizer — suffering such symptoms as respiratory distress, headaches, nausea, rashes, reproductive complications, cysts, and tumors. Federal regulations are woefully lax. The EPA monitors only nine of the thousands of pathogens commonly found in sludge; the agency rarely performs site inspections of sewage treatment plants; and it almost never inspects the farms that use sludge fertilizer.”<sup>(2)</sup>

As I understand it, the Virginia General

Assembly has passed laws forbidding localities to ban the spreading of sludge, and the Supreme Court has ruled it is interstate commerce. Otherwise, communities would have stymied sludge application long ago. Any testing done is carried out by the sludge haulers and/or the treatment plants. The regulations governing spreading are designed by the industry and are pretty much handled on the honor system, trusting that the farmers and the haulers/spreaders will all manage it properly.

## Stacked Deck?

Reading the complaints section of the Virginia Department of Health (VDH) web site, shows how the complaints have been dealt with. In summary, the local residents lodge complaints for anything from odor (bad!), to health problems (also can be bad), to regulations being disregarded. The VDH sends out a man (who formerly worked for one of the sludge haulers) to inspect. He

finds the odor “minimal” (as compared to what?) and that the regulations are being followed.

People with health problems are required to show peer-reviewed research published in a recognized journal that relates their problem to exposure to “biosolids,” for the VDH denies that there are any, even when doctors testify to the contrary.<sup>(3)</sup> Reading this list, one would be led to believe that the regulatory system is working. But in talking to the people who live in these areas, those who have had their health destroyed, their property devalued, the quality of their life demolished, one gets a different picture indeed.

So, just what does all this have to do with our lamas? The evidence suggests they can be impacted in several ways. One is through the effect of sludge upon the agricultural lands, and the other is in the possible pollutants taken up by the plants that are grown there.

Farmers are not told that this “free fertilizer” is poorly-balanced, and that with sludge they will be adding considerably more phosphorous in relation to the nitrogen than is recommended. Initially, the big shot of nitrogen makes their fields look great and production is increased. Over time, however, the excess phosphorous builds up in the soil, and production starts to drop off dramatically.



**Top:** *Daisy*, one of Boyceland Dairy’s champion cows.

**Right:** A typical example of what sludge-affected cows look like.



“*Death of a Farm*”  
[www.sludgefacts.org](http://www.sludgefacts.org)

Some farms have shown as much as a 50 percent reduction in crop yields.

### 'Stuff' Includes Heavy Metals

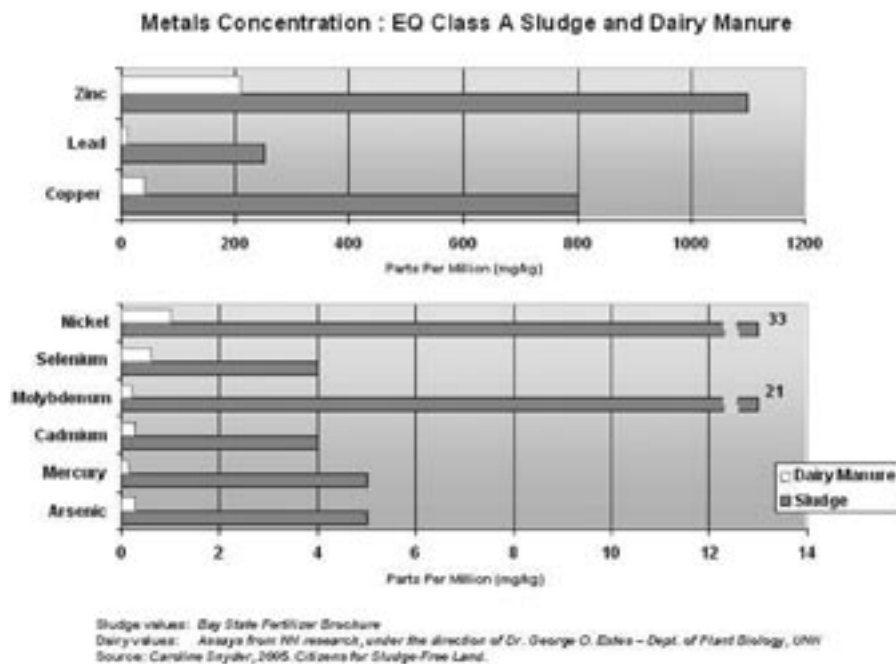
Of the quantities of sludge that is spread, only a small portion is actually available to the plants as food. That leaves a lot of other "stuff" lying around out there. Some of it is heavy metals, which are thought to be retained in the soil as long as it is alkaline. However, it has been shown that the addition of lime can actually increase the uptake of some metals by plants.<sup>(1)</sup>

Lime is added to the sludge prior to spreading to "stabilize" it, and the lime is expected to work over a three-year-period. However, results from this lime addition vary from site to site. Here in central Virginia, as in many other areas, the soils tend to be very acidic, and it is extremely likely that the lime is used up well before the three-year-period ends. Any acidifying of the soil makes most of the heavy metals more available to be taken up by the plants growing in the sludged field. And we really do not know what happens with the chemicals and pharmaceuticals that are out there.

Most of the information about the impact of sludge upon animals is based upon cattle who have been grazed on these fields, and who have been fed silage/hay grown thereon. There are numerous incidents cited of greatly increased mortality rates, abortions, birth defects, weak and non-surviving offspring. Apparently, exposure to the sludge can affect the immune system of the cattle, and they then become subject to all of the diseases that affect them. (This is also true of humans for whom exposure is most likely through airborne particles, but we are talking about animals here.)

A veterinarian in Fauquier County, VA, has several clients with animals on or adjacent to fields spread with sludge. She states in an e-mail, "the animals suffered health consequences, especially the young animals. Older animals I see on sludged pastures have poor hair coats and, in my opinion, reduced immune function." While much of this influence may be attributed to the direct contact with sludge (cattle are only kept off the fields for 30 days and lactating cows for 60), some of it is very likely due to ingesting some of the substances that have been spread there through grazing grass and eating silage/hay grown upon the sludge-spread fields.

One short article from a newspaper clipping that I read claimed that Bermuda grass



grown on sludge-spread fields had killed an entire herd of miniature horses. Unfortunately, I could not find more information on that story.

I did find several interesting comparisons that might be particularly important to us as camelid breeders/owners. The following graph compares the metals concentration in Class A sludge and Dairy Manure. There are considerably higher levels of metals in the sludge than is present in the manure. Of particular interest to us would be the levels of copper, as camelids are very sensitive to this. In dairy manure, the level would typically run less than 50 ppm (mg/kg) while in the sludge it is 800 ppm. As you can see, this disparity is clearly present in all the metals tested, some with even greater discrepancies.

Another table<sup>(4)</sup>, less amenable to reproduction here, compared the levels of metals found in agricultural soil and dairy manure with the standards for sludge in the Netherlands, the E.U., Ontario (Canada), and the U.S. Very small amounts (less than 10 ppm) of copper were present in both the manure and the soil. The standards for the Netherlands, E.U. and Ontario ranged from a low of 60 ppm to a high of 75 ppm, while the standard for the U.S. was 1500 ppm! In fact, the U.S. Standards have the highest amounts allowed for all of the metals listed. So clearly, hay grown on the sludged fields could certainly contain a level of copper well above what we would wish to be feeding our alpacas and llamas. These differences were also true for the other metals listed, and we

can only guess at the impact some of these might have on our animals.

### Killing the Land Can Kill Us

The video, *Sludge Diet*,<sup>(5)</sup> describes an experiment conducted on the impact of sludge upon soil in New York. They spread sludge upon one field, and left the adjoining field in its natural state. Twenty-five years later, the sludge-spread field still does not contain any earthworms, while the unspread field contains the amount one would expect to find in healthy soil. One article, written by several researchers from Cornell, studies soil that had been treated with metal-contaminated sludge. The results are expressed in this statement: "More than one million distinct genomes occurred in the pristine soil, exceeding previous estimates by two orders of magnitude. Metal pollution reduced diversity more than 99.9%, revealing the highly toxic effect of metal contamination, especially for rare taxa."<sup>(6)</sup>

If our hay and grains are grown on such land, are they going to supply the nutrients that our alpacas and llamas need? Are they going to supply heavy metals and other chemicals that may affect their ability to reproduce, their immune systems, their general health? Who can honestly say?

I plan to start questioning my feed store (and pester them to question the mills where they purchase feed) about whether the grains, and other products used in my alpaca and llama pellets have been grown on fields that have been sludge-spread. I will

no longer buy hay from any source which cannot confirm it has been grown on pristine land. These are just sensible precautions, and may actually help to bring some pressure to bear on the suppliers to avoid the agricultural products thus produced. I believe that this can be referred to as “voting with our pocketbooks.”

Of course, if this practice can negatively affect the food supply of our animals, what about us? Yes, we need to be vigilant about the food that we eat as well. Visit the **Citizens Against Toxic Sludge** (CATS) web site ([www.stopsludgeVA.org](http://www.stopsludgeVA.org)) for a list of food processors and retailers who do not accept products grown on sludged land. This list is a work in progress, so check back often to see what new information is there. The web site also contains links for other sources of information which you may wish to pursue. I particularly recommend [www.sludgefacts.org](http://www.sludgefacts.org) as a source for information.

Frankly, I had heard of some health problems associated with the spreading of sludge and those who were exposed, and I had heard a number of complaints directly from people in adjacent counties who were living with it. I joined the CATS group out of a sense of injustice being done: I could not see how a farmer could spread something on his land for his own benefit which could so negatively impact those living around him. After signing up, I started to research the subject. What you have read is much of what I learned.

### We Need to Know More, Much More

After reading this, most will wonder how on earth we got to this place? It is a long and rather convoluted story, but the essence of it is that we had the technology to clean our water, but not the technology to deal with the waste from that process. Here is a very simplified version of what happened. There were four options for dealing with sludge: dump it in the ocean, incinerate it, put it in landfills, or spread it upon the land.

Ocean dumping was banned because doing so created large “dead zones.” Incinerating it polluted the air. Putting it in landfills became expensive. Which left spreading it on land.

Thus, the policy became to choose rural areas, preferably poor, and haul it there. But the consequences of this action have never been adequately investigated, and we are paying the price for that in many ways today. Have you ever wondered why, all babies, not just those considered to be at risk, are

now routinely vaccinated after birth against Hepatitis A? Have you ever wondered about the *e. coli* outbreaks that showed up in the news recently? The outbreak of MRSA (antibiotic resistant Staph) at a prison down in Southampton County, VA, which was treated as a routine and easily handled occurrence? Why the reproductive systems of amphibians are being so horribly affected? How many things are being swept under the rug so that we do not raise an outcry? This madness simply has to stop, and we each need to do our part to see that it does.

And your part is to start trying to raise awareness of this issue. Talk to your friends, particularly those who are urban dwellers, for they do not realize that they are affected at all. Educate those around you to this issue, and help them to work through the maze of public relations material that the “biosolids” industry uses. This industry is now well-entrenched, and it will take large numbers of us to change this practice. Stay aware, and if you see that the sludge haulers are targeting your area, contact CATS for information on how to fight them.

There is a hopeful note in all this. Today we have another method for handling sludge: gasification. Using this new technology<sup>(8)</sup>, sludge can be burned within an enclosed container to generate methanol, while polluting neither land, nor water, nor air. This is win-win technology, in that it creates energy over and above that required to dispose of the sludge. Such excess energy is then available for use or sale and can be stored much like natural gas. Clearly, this is a renewable source for energy! The downside to this method is that it is expensive in terms of upfront costs, but not nearly as great as the destruction of our agricultural lands would be. (For more information on gasification, see notes below.) This method is one that we should strongly advocate, and we need to build a groundswell of voices doing so. We are not caught in a hopeless situation here. We have a way out, but it is going to require that we, as a nation, wake up to the potential for damage inherent in the practice of spreading sewage sludge upon our lands and in our forests. Let us all work toward bringing forward the day of awakening!

(1) “Death of a Farm”; [www.sludgefacts.org](http://www.sludgefacts.org)

(2) “Sick of All That Sludge,” *The Lynchburg News and Advance*, July 10, 2005

(3) “Sewage Sludge”; [www.centerforfood-safety.org/sewage\\_sludge.cfm](http://www.centerforfood-safety.org/sewage_sludge.cfm)

(4) “US Compost Metal Standards Compared to Those of Other Countries”; [www.sludgefacts.org](http://www.sludgefacts.org); document 76

(5) *The Sludge Diet*; Canadian Documentary, distributed by Paul Maltais at [www.cinefete.ca](http://www.cinefete.ca)

(6) J. Gans, M. Wolinsky, J. Dunbar. Computational improvements reveal great bacterial diversity and high metal toxicity in soil. *Science*, vol. 309, issue 5739, 1387-1390, 26 Aug. 2005.

(7) National Research Council. 2002. *Biosolids Applied to Land: Advancing Standards and Practices*. National Academy Press. Washington, DC.

(8) “Innovative Renewable Energy Technology Using Sludge”; [www.sludgefacts.org](http://www.sludgefacts.org); documents 87(1), 87(2), and 87(3), & “Converting Sludges to Clean, High Quality Energy”; document 90.

*Editor's Note:* **Jo Overbey**, a Virginia alpaca breeder, has researched this exhaustively. **LLII** has had to cut some of what she found in the interests of space. Her complete story can be found on our web site: [www.llamalife.com](http://www.llamalife.com) ▲