

P. O. Box 539
Ophelia VA 22530
November 25, 2005

President William C. Baker
Chesapeake Bay Foundation
Philip Merrill Environmental Center
6 Herndon Avenue
Annapolis MD 21403

Dear Mr. Baker:

I was horrified to read your statement in "Assessing the State of Chesapeake Bay Agriculture in 2005" under item 8, Fertilizer Efficiency, that "..... farmers are managing commercial fertilizer more efficiently and substituting manure for commercial fertilizers, a smart move if manure is applied based on careful soil testing." You are apparently ignorant of the fact that no amount of "careful soil testing" can overcome the inefficiencies involved in using any form of animal waste (poultry litter, municipal sewage sludge or manure) as fertilizer. Nutrients from animal wastes are released slowly, just as a fallen tree decomposes slowly, and much less than half the nutrients are crop-available during the next crop cycle. Nitrogen and phosphorus in animal waste are both applied far in excess of crop requirements for this reason, and the excesses are responsible for massive pollution.

As a specific example, I recently observed the land application of sewage sludge in Northumberland County, Virginia. I believe that the property owner and spreader adhered strictly to current policies of the Virginia Department of Health (VDH), albeit in violation of Virginia Statute. Based on the submitted Nutrient Management Plan, 24,770 pounds of nitrogen were spread on 72.4 acres in accordance with Table 9-1 in the Virginia Department of Conservation and Recreation's (DCR) "2005 Nutrient Management Standards and Criteria," or "Standards." If chemical fertilizer had been used, 7,431 pounds of nitrogen would have been applied. Lime-stabilized sewage sludge is applied on the basis that 30% of the nitrogen is crop available the first year ($24,770 * 0.3 = 7,431$), 10% the second and third years, and 5 % the fourth year. This means that 55% of the nitrogen is presumed to be crop-available over four years and the remaining 45% is pollution. This specific application caused at least 11,000 pounds of nitrogen pollution, which is in addition to the natural inefficiency of any kind of fertilizer, or roughly 30 to 40% of the nitrogen lost to the environment. No nitrogen analyses of the soil were conducted, and the nitrogen was applied based solely on the kind of soil (Soil Series), its relation to "Soil Productivity Group" as listed in "Standards" and the residual from the previous crop. Obviously, in the case of nitrogen, your statement that ".....substituting manure for commercial fertilizers, a smart move if manure is applied based on careful soil testing" is completely false. No soil testing, careful or otherwise, was involved and 45% of the nitrogen was acknowledged pollution. If dairy manure had been used, according to DCR regulations for spring or early fall application, 35% of the nitrogen would have been crop-available and 65% would constitute pollution.

In the case of phosphorus, 5 fields encompassing 55.9 acres tested "Very High" in phosphorus. This acreage should have received no phosphorus according to Virginia Statute 12VAC5-585-550.A "The applied nitrogen and phosphorous content of biosolids shall be limited to amounts established to support crop growth" and "Standards." According to "Standards" the remaining 16.5 acres, based on soil tests, should have received no more than 1151 pounds of phosphorus. In fact, 10,912 pounds of phosphorus were applied. The "...careful soil testing" was simply ignored, which is now the practice sanctioned by VDH. The Virginia Statute cited above

is being ignored by the State, from the Governor on down (see the correspondence at www.napsva.org). In my opinion this is being done in order not to restrict land-application of animal waste in the mistaken belief that it is “free fertilizer” for a few farmers and to guarantee profits for a few special interests. In fact, as any professional economist will tell you, nothing is free. Somebody pays. The cost of massive pollution from the land application of animal waste is borne by society in the form of cheap meat, insignificantly lower wastewater bills and degraded water quality in Chesapeake Bay.

You must publicly retract your false statement. The use of animal waste as fertilizer is the most egregious and polluting agricultural practice, and the most easily rectified. The magnitude of the problem in the case of nitrogen is documented in an excerpt from my public comments regarding DCR’s “Nutrient Management Training and Certification Regulations, 4 VAC 5-15” which is also available at www.napsva.org.

“It is instructive to ask how much N is land-applied in animal waste annually in Virginia, but not used by crops. The tons land-applied in 2003 were supplied to me by State agencies, and the fraction N in the animal waste and the fraction of the N not used by crops (pollution) are from “Standards.”

	<u>Pounds applied</u>	*	<u>fraction N</u>	*	<u>fraction N not used</u>	=	<u>pounds N pollution</u>
Sewage sludge	494,648,000	*	0.02	*	0.48	=	4,749,000
Poultry litter	1,115,268,000	*	0.03	*	0.40	=	13,383,000
Cattle, swine	468,509,000	*	0.03	*	0.60	=	<u>8,433,000</u>
							26,565,000

27 million pounds of N were land-applied in 2003 in Virginia but not used by crops. To put this large number in perspective, the Virginia Tributary Strategies claim that Virginia rivers supply 78 million pounds of N to Chesapeake Bay annually. The 2010 Cap Load Allocation for N is 51 million pounds. The goal of reducing 78 million pounds of N discharge to 51 million pounds annually by 2010 could be achieved (78 – 51 = 27) by simply eliminating the land-application of animal waste.”

If your statement is not corrected publicly, no citizen can conclude that the Chesapeake Bay Foundation is sufficiently knowledgeable or unbiased to act in the best interests of Chesapeake Bay. Substituting manure for commercial fertilizer may be a “...smart move...” for special interests, but it is responsible for massive and easily correctable pollution.

Yours sincerely,

Dr. Lynton S. Land
 Emeritus Prof. Geol. Sciences and E. Allday
 Centennial Chair, Univ. Texas, Austin

Cc: Jennifer B. Horton, Gov. Mark Warner, Gov.-elect Tim Kaine, press