

Proposed regulations are unscientific and incomplete

The Virginia Pollution Abatement (VPA) Permit Regulation for Poultry Waste Management is intended "... to ensure that poultry waste is being used in a manner in which state waters are being protected ..." and to "... ensure that poultry waste (is) applied and stored in a manner that is protective of water quality." The proposed regulations are not based on science, are incomplete, and do not achieve that goal.

In the case of nitrogen, (9VAC25-630-50, Part I, 8) "Nitrogen application rates contained in the NMP shall not exceed crop nutrient needs as determined by the Department of Conservation and Recreation." According to DCR's "Virginia Nutrient Management Standards and Criteria, Revised 2005" (hereafter referenced as "Standards"), the "Coefficient for Organic Nitrogen Availability in Manures" (Table 8-2) for spring or early fall application is 0.6, meaning that 60% of the nitrogen in the litter is "crop available." Using data from 27 corn fields from the 2004 and 2005 "Virginia On-Farm Corn Test Plots," for each acre on which corn was grown, on average, 162 pounds of conventional nitrogen (N) fertilizer were applied to yield an average of 174 bushels of corn grain. Assuming 56 pounds/bushel of grain, 15% moisture and 1.4% N in the dry grain, 116 pounds of nitrogen were removed from the field with the grain. Therefore each acre, on average, released 46 pounds (162 - 116) of nitrogen to the environment. Not all the nitrogen added as fertilizer but not removed from the field with the grain constitutes pollution. Denitrification might eliminate as much as one-third of the excess applied nitrogen, but the remainder constitutes water pollution. Inefficiencies in chemical fertilization account for approximately one quarter of Chesapeake Bay nutrient pollution. In the case of poultry litter, because only 60% of the nitrogen is "crop available," 270 pounds (162/0.6) of nitrogen must be applied to satisfy "crop nutrient needs," releasing 154 (270 - 116) pounds of nitrogen to the environment. In order to use poultry litter as fertilizer and satisfy the nitrogen needs of the crop, based on accepted science, three times the nitrogen pollution is caused than is true of conventional fertilization. It is impossible to use animal wastes (poultry litter, sewage sludge and manure) as fertilizers without causing much more nitrogen pollution than is true of even a single-application of conventional chemical fertilizer because it takes time for microbes to decompose the organic particles and make the nutrients available to the crop. The land application of animal waste accounts for approximately one quarter of Chesapeake Bay nutrient pollution, similar in magnitude to the pollution caused by the use of chemical fertilizer and by all the wastewater treatment plants in the watershed (www.bayjournal.com/article.cfm?article=2969.) The land application of animal waste cannot, under any circumstances, be considered protective of state waters. The law is being followed if nitrogen application rates do not exceed crop nutrient needs as specified in "Standards," but the law currently sanctions massive water pollution in favor of the profits of special interests because of the inefficiency of animal wastes as fertilizers.

A choice between four poultry litter application rates is allowed under the proposed 9VAC25-630-80:

a. Phosphorus crop removal application rates can be used when ... Soil test phosphorus levels do not exceed the values listed in the table below:

<u>Region</u>	<u>Soil test P (ppm)</u>
<u>Eastern Shore and Lower Coastal Plain</u>	<u>135</u>
<u>Middle and Upper Coastal Plain and Piedmont</u>	<u>136</u>
<u>Ridge and Valley</u>	<u>162</u>

The values in the Table are not based on accepted science, and nowhere are they justified. According to Dr. A. N. Sharpley (editor of "Agriculture and Phosphorus Management: The Chesapeake Bay", 1999, CRC Press, p. 66). "... much of the crop land in the Chesapeake Bay watershed is now considered "optimum" or "excessive" in phosphorus from an agricultural perspective and hence needs little additional phosphorus, from any source, to ensure that economically optimum crop yields are attained." The "Mid-Atlantic Nutrient Management Handbook" (Mid-Atlantic Regional Water Program 06-02) is more quantitative, and states (p. 164) "... the critical level for soil test phosphorus for the Mehlich 3 soil test is around 30 ppm for Mid-Atlantic soils. If the test is below 30 ppm we would expect a profitable increase if we add phosphorus. **However, if the soil test is above 30 ppm, no yield response is expected.**" (My emphasis) A Mehlich 3 value of 30 ppm corresponds to a Mehlich 1 value of about 12 ppm, the value from a soil testing "M" or "Medium" in Table 2-1 in "Standards." If the soil test phosphorus (Mehlich I) exceeds 55 ppm, a number far smaller than in the table in the proposed regulations, no phosphorus should be applied according to "Standards," section V, or "VALUES." **Under no circumstances can applying any phosphorus if the soil test is higher than 55 ppm be justified scientifically.** As written, option a. simply sanctions the disposal of poultry waste while imposing an unscientifically based, and unrealistically high "cap." Adding phosphorus when the soil already contains enough phosphorus for the crop will unquestionably cause water pollution. This option should be stricken as it is not scientifically based.

b. Poultry waste may be applied to any crop at the standard rate of 1.5 tons per acre once every three years when: (1) In the absence of current soil sample analyses and recommendations; and (2) Nutrients have not been supplied by an organic source, other than pastured animals, to the proposed land application sites within the previous three years

of the proposed land application date of poultry waste.

The data in Table 8-4 of “Standards” for dry litter indicate this practice would allow approximately 77 pounds of phosphorus to be applied per acre every three years. As written, this wording simply avoids a soil test, and sanctions disposal of poultry waste no matter how much phosphorus the soil already contains. This option should also be stricken. Application rates should always be determined by soil test phosphorous measurements, otherwise disposal on the land in the guise of fertilization is not “... protective of water quality.” Only 95 pounds of nitrogen would be supplied at this application rate, so additional nitrogen fertilizer would need to be used, but no restrictions are placed on that amount.

c. Soil test recommendations can be used when: (1) Accompanied by analysis results for soil tests that have been obtained from the proposed field or fields in the last three years; (2) Provided by a laboratory whose procedures and recommendations are approved by the DCR; and (3) Nutrients from the waste application do not exceed the nitrogen or phosphorus recommendations for the proposed crop or double crops listed on the soil test recommendation.

The word “can,” permits highly permissive application rates (a. and b.) that are not justified scientifically and are certainly not “... protective of water quality.” “a.” and “b.”, should be stricken, and option “c.” should be replaced by a new option “a.”:

~~e. a. Soil test recommendations must be used when: (1) Accompanied by analysis results for based on soil tests that have been obtained from the proposed field or fields in the last three years; (1) Provided by a laboratory whose procedures and recommendations are approved by the DCR; and (2) Nutrients from the waste application do not exceed the nitrogen or phosphorus recommendations for the proposed crop or double crops listed on the soil test recommendation. in VALUES.~~

~~d. b. A nutrient management plan developed by a certified nutrient management planner in accordance with B§ 10.1-104.2 of the Code of Virginia.~~

Section § 10.1-104.2 of the Code of Virginia requires DCR to “... certify the competence of persons preparing nutrient management plans for the purpose of assisting land owners and operators in the management of land application of fertilizers, municipal sewage sludges, animal manures, and other nutrient sources for agronomic benefits and for the protection of the Commonwealth's ground and surface waters.” In section A.3, the “... **criteria** relating to the development of nutrient management plans for various agricultural and urban agronomic practices” are found in “Standards.” (My emphasis)

The Virginia Administrative Code (9VAC25-32-600A) states: "The primary

agronomic value of biosolids, the nutrient content, shall be established prior to agricultural use. The applied nitrogen and phosphorous content of biosolids **shall be limited to amounts established to support crop growth.**" (My emphasis) The "... amounts established to support crop growth" are listed in Section V of "Standards" and do not exceed 55 ppm phosphorus, based on a soil test. There is no conceivable scientific reason that the application rate for poultry litter should not follow the same principles as for sewage sludge. Both wastes are highly inefficient fertilizers that require slow microbial degradation of the organic material to provide nutrition for the crop. Table 2 in the "Virginia Phosphorus Index, Version 2.0" allows sewage sludge to be applied to soils containing more than 55 ppm phosphorus, which is a blatant violation of law (9VAC25-32-600A) because more phosphorus is applied than is necessary "... to support crop growth" as dictated by "Standards."

These proposed regulations ignore the fact that poultry litter can contain arsenic, which is commonly used as a food additive. There is considerable concern that arsenic can leach out of stored piles of litter and contaminate water bodies (http://attra.ncat.org/attra-pub/arsenic_poultry_litter.html). In fact, this happened in Northumberland County when a farmer irresponsibly stored a large pile of litter for nearly two years at the edge of a ravine and caused massive eutrophication of a down-stream pond (e. g. <http://fredericksburg.com/News/FLS/2008/122008/12112008/431168>). These regulations must address arsenic concentrations in the same way that arsenic concentrations in sewage sludge are addressed (e. g. 9VAC25-32-660). The regulations should specify an upper limit for arsenic concentration, no higher than 75 ppm, and should explicitly state that leaching and runoff from stored piles of litter is absolutely prohibited.

The regulations, as written, also ignore environmental contamination by fecal coliform bacteria as the result of the land application process. Poultry litter can contain concentrations of fecal coliform bacteria far in excess of concentrations permitted by EPA in sewage sludge (Schumacher, 2003, Survival, Transport and Sources of Fecal Bacteria in Streams and Survival in Land-Applied Poultry Litter ..., USGS Water-Resources Investigations Report 03-4243, 39pp.) Specifically, the land-application of poultry litter (and sewage sludge) should be banned in the watersheds of bodies of water that violate the Clean Water Act and are formally impaired because of high fecal coliform bacterial levels, especially where harvesting of shellfish is prohibited for that reason.

No fee structure is imposed, as is done in 9VAC25-20-146 for the land application of sewage sludge, to reimburse localities for oversight costs and to reimburse the State for implementing the land application program.

The regulations for the land application for poultry litter should be no less stringent than regulations for the land application of sewage sludge. Both kinds of waste are inefficient fertilizers and cause massive nitrogen and phosphorus pollution compared to

conventional chemical fertilizers. Animal wastes contain fecal coliform bacteria, and substances such as antibiotics and/or heavy metals that must be regulated so contamination does not occur in the Chesapeake Bay watershed, a body of water formally impaired by EPA.

If the State chooses to promulgate these unscientific regulations as written, instead of adhering to the principle that only the amounts of nitrogen and phosphorus required by the crop should be applied, based on a soil analysis, the State demonstrates conclusively that their concern is not protecting water quality. As written, these regulations protect the profits of the waste producers and sanction the cheapest possible disposal of poultry waste to the detriment of water quality.

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