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Confined Livestock Operations Account For a Majority of the Chesapeake Bay Area's Farmland With Applied Manure

by **Stacy Sneeringer**

Excessive flows of nutrients into the Chesapeake Bay can damage the bay's environment, yielding coastal dead zones, fish kills, and impaired drinking water supplies. This can lead to health risks and economic costs for those who use the bay's waters or live nearby. Agriculture is a main contributor to nutrient run-off, responsible for 38 percent of the bay's nitrogen and 45 percent of phosphorus loadings. According to the U.S. Environmental Protection Agency (EPA), land application of livestock manure accounts for about half of

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these agricultural loadings.

Chesapeake Bay States have focused on greater oversight of the manure management at large concentrated animal feeding operations (CAFOs), which are farms that confine animals and have limited acreage on which to spread manure. In the Chesapeake Bay watershed, approximately 70 percent of large and medium CAFOs produce poultry, while nearly three-quarters of small CAFOs are dairy farms. While estimates of land-applied manure's impact on bay pollution exist, the portion attributable to specific types of farming operations is less clear. Information on which livestock operations are most responsible for manure applications could help the Chesapeake Bay States better target scarce policy resources.

Using 2007 Census of Agriculture data and methods developed by the USDA Natural Resources Conservation Service, farms were characterized according to their livestock confinement and size, crop acreage, and acreage to which manure and fertilizer were applied. Although they constitute only 16 percent of all agricultural operations and cover only 29 percent of cropland and pastureland in Chesapeake Bay watershed counties, CAFOs control 65 percent of the acres on which manure is applied. Crop-only producers cover a third of fertilized acreage and only a small percentage of manure-applied acres.

Large CAFOs—confined operations with at least 1,000 cows or 10,000 broiler chickens—account for approximately 1 percent of farms in the bay watershed and only 6 percent of manure-applied acreage. On the other hand, small and medium CAFOs account for about 15 percent of the watershed's farms and 59 percent of its manure-applied acreage. These operations are generally not regulated under CAFO manure management rules. This suggests that policies addressing manure nutrient discharges from small and medium CAFOs may be needed if larger reductions in Bay nutrient pollution are desired.

CAFOs cover 65 percent of manure-applied acres but constitute 16 percent of farms in the Chesapeake Bay, 2007

Operations with...	Percent of operations	Percent of cropland and pastureland	Percent of fertilized acres	Percent of manure-applied acres
All	**100**	**100**	**100**	**100**
No livestock -- Less than 100 acres of cropland	27	9	4	2
No livestock -- 100 acres or more of cropland	5	20	32	9
Some livestock but not likely to be confined	52	40	26	23

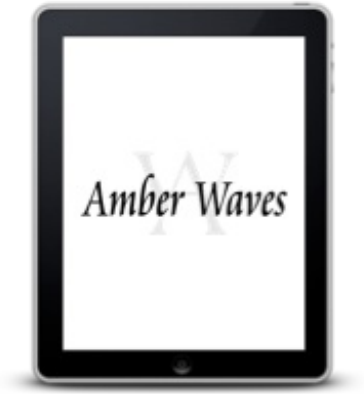
Small CAFOs	12	21	24	41
Medium CAFOs	3	7	10	18
Large CAFOs	1	2	4	6

CAFO = concentrated animal feeding operation.
Source: USDA, Economic Research Service using data from the 2007 Census of Agriculture.

This article is drawn from...

"Differences between Livestock and Crop Producers' Participation in Nutrient Trading", by Stacy Sneeringer, in Applied Economic Perspectives and Policy 35: 296-321, 2014

The Next Generation of Tools and Actions to Restore Water Quality in the Chesapeake Bay: A Revised Report Fulfilling Section 202a of Executive Order 13508, U.S. Environmental Protection Agency, November 2009



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