Elizabeth Christenson

Using Remote Sensing to Calculate Plant Available Nitrogen from Industrial Swine Farms in North Carolina at the Sprayfield and Sub-Watershed Scales

Wednesday, 8 April 2015 | Beard Hall 116 | 2:30 P.M.

Abstract:

North Carolina (NC) is the second largest producer of hogs in the United States with Duplin County, NC having the most hogs in the country. Waste from industrial-sized swine concentrated animal feeding operations (CAFOs) is stored in open air lagoons and sprayed onto sprayfields as fertilizer. Swine CAFOs are regulated based on their ability to have nutrient management plans (NMPs) that have balanced plant available nitrogen (PAN), which means that PAN in manure produced by swine must be less than the PAN utilized by crops grown on sprayfields. Objectives of this research are first to quantify the difference in hog manure PAN balance between CAFO point and sprayfield area locations at two sub-watershed scales in Duplin County. In doing so, a review of Duplin County’s 485 active NMP permits was conducted and the first NC sprayfield spatial database created for over 24,000 permitted sprayfield acres. Second, a new method incorporating remote sensing data that separates by year was developed to identify PAN balance on sprayfields at two sub-watershed spatial scales in Duplin County for years 2008-2014.

Committee:

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