

Ranae Dietzel

Background

I grew up in central Iowa and went to school at Hubbard-Radcliffe until graduating in 2002. From there I attended the University of Minnesota – Morris where I received a B.A. in Biology. During my first summer I worked with riparian buffer systems as an undergraduate research assistant in the Natural Resource Ecology and Management department at Iowa State University. The next summer I worked at Agro-Soyuz in Mayskoye, Ukraine as a veterinary assistant. After my junior year I was employed at the USDA-ARS North Central Soil Conservation Laboratory in Morris, MN, where I assisted with research on trace gas emissions and carbon sequestration in agricultural soils. I graduated in 2006 and began my Master's degree at Cornell University the following fall. My Master's work focused on the influence of snow cover and winter cover cropping on increased nitrous oxide emissions during spring soil thawing and sought to elucidate a molecular mechanism behind increased nitrous oxide emissions during this period. I came to Iowa State University in January of 2009 to pursue a Ph.D. in Sustainable Agriculture and Agronomy.

Research Interests

My research examines and compares belowground carbon and nutrient dynamics in perennial and annual systems. Perennial systems in Iowa are becoming more common as biofuel crops and restored prairie, while annual systems are represented by corn and soybean crops. Both systems are capable of producing large amounts of biomass, but perennial systems may be able to do so while receiving less input and may offer more environmental benefits. I am interested in finding how perennial systems have high production despite little input, how long it takes for these systems to establish the underground ecosystem necessary for such function, and how environmental benefits such as long-term carbon sequestration and reduced nutrient loss compare to annual systems.