Organic Research Shows Higher Water Quality under Organic Conditions

Increasing production of organic products is of paramount importance to meet growing consumer demand and transition more farms to organic practices to decrease environmental problems associated with conventional farming. An example of a farmer-derived, environmental question and the resulting research is the Organic Water Quality project with Iowa State University (Kathleen Delate) and the USDA-ARS National Lab for Ag and the Environment (NLAE) in Ames, Iowa (Cynthia Cambardella). Organic farmers asked for proof that their environmentally sound practices of using slow-release nitrogen sources (such as compost and manure) and extended crop rotations that included perennial species (e.g., alfalfa and other forages) resulted in water quality that met clean water standards. Two agencies at USDA then funded this research, and an elaborate underground system of tiles and sophisticated monitoring equipment was established under the 32 comparison organic and conventional plots near Ames, Iowa. After three years of monitoring, Dr. Cambardella was able to conclude that the nitrogen loading under organic fields was nearly 50% less than conventional corn-soybean fields. You can read about this research here: http://www.ccsenet.org/journal/index.php/sar/article/view/50106

This result is particular important in states like Iowa, where water districts are under pressure to increase regulation on nitrogen leaching into municipal water supplies. We are currently preparing a policy paper showing the benefits of organic farming in helping deal with the problem of nitrate contamination and its negative effects on human health. New research at this site involves a molecular examination of soil microbial populations that are critical for nutrient cycling to help lower any potential nitrogen leaching from the system, and identifying microbes with other functions that support healthy crops.