Undergraduate Internship Project #1 of 10 for FY07

Intern Sarah Chatterson’s project, co-sponsored by the DWRC and the UD’s College of Agriculture and Natural Resources, was titled “Willingness to Pay for Sustainable Agricultural Practices in an Urbanizing Region.” She was advised by Dr. Joshua Duke of the UD’s Department of Food and Resource Economics.

Abstract

The objective of this study was to estimate the willingness to pay of residential neighbors to an agricultural operation for the improvement of the agricultural management practices with respect to sustainable practices. The region studied was the area surrounding St. Andrews School, a private school on 2,200 acres of land near Middletown, Delaware. Of the total acres, 1,500 acres are used for crop production and 600 acres are in forest cover. The population of residential neighbors of St. Andrews School was identified to be the three surrounding zip codes, overall 8,625 households. From this a sample of residents was drawn. This sample included two subsamples: (1) all residents living within 0.5 miles of St. Andrews School property; and (2) a random sample of remaining households in the zip codes. A mail survey was sent to 1,500 residents with a response rate of 45.8%. The survey instrument identified three survey attributes for a choice experiment: (1) acres of land preserved by management contract; (2) use of sustainability practices including pelletized broiler litter, riparian buffer zones, and no-till cropping; and (3) cost per household. The regression results show that the variables of acres preserved, cost per household, and the sustainable practice (other than no-till) were statistically significant (Table 1). Based on survey results, a household mean willingness to pay and a total population willingness to pay was calculated for the sustainability practices and acres preserved. The benefit to the population of utilizing all of the sustainability practices and preserving all acres is estimated to be $16,468,688 (Table 3). Duke and Johnston (2007) estimated the benefits to Delaware at $77,316,330. This gives total estimated benefits of $93,803,018. Costs were estimated to be $48,510,000 based on the Delaware PACE program for preservation and the use of management contracts. Of this, $42,000,000 is for preservation alone. Therefore, total net benefits of utilizing all of the sustainability practices and preserving all acres is estimated to be $45,293,018. Overall, public goods demand for preservation and management practices is significant. The results show that management contracts can increase benefits 2-4 times over preservation alone. In addition, the cost of sustainable management practices is lower than the cost of preservation and provides the same amount of benefits. Therefore, future policies should consider an increased focus on sustainable management rather than on preservation alone.