Estimating the Value of Irrigation Water for Agricultural Production in Southwest Georgia

For more information, please contact:
Dr. Laura Taylor, Director
Center for Environmental and Resource Economic Policy (CEnREP)
North Carolina State University
laura_taylor@ncsu.edu

The agricultural sector in Georgia contributed more than $7.2 billion dollars in final output to the Georgia economy in 2005, and employs approximately 22% of individuals living outside of metropolitan areas within the state (Economic Research Service, 2005 and 2006). A major part of this agricultural output, especially in terms of crop value, is supplied by the counties lying within and along the Flint River Basin (FRB) in the southwestern region of the state. The harvested acreage in the FRB represents 36% of the total harvested acreage statewide (USDA, 2002), and the resultant agricultural production has a substantial impact on the local economy. Agricultural production in the FRB is estimated to account for approximately 34% of the FRB's regional economy (Environmental Protection Division, 2006).

The ability to adequately irrigate during summer months is particularly important for maintaining the health of the agricultural sector. In the eighteen counties of the lower FRB, the majority of farmland (52%) is irrigated (USDA, 2002). This irrigation accounts for 87% of water withdrawals in the FRB during the months of May through August. Total withdrawals are predictably heavier during these summer months as water is withdrawn for the growing season; summer average withdrawals are 1,888.26 million gallons per day (MGD), as opposed to 265.24 MGD for the winter months November through February (EPD, estimate from 2004 data). Even though a substantial portion of the FRB agricultural sector relies on irrigation, agricultural losses can still be substantial when a drought occurs. During 2006, it was estimated that agricultural losses due to drought totaled $819.4 million, and were accompanied by a loss of between 9,000 and 17,450 jobs in the agricultural sector statewide (Flanders, McKissick and Shephard, 2006). While irrigation cannot completely offset drought conditions, a reduction in the ability to irrigate during summer months would further compound these losses.

Given the importance of the agricultural sector to regional economies, and the importance of irrigation to the agricultural sector, it is necessary to understand the potential costs associated with any restrictions on this input into agricultural production. This project reviews the extant research which has attempted to estimate the value of water use for irrigation purposes in southwest Georgia. There are a number of different studies now available which consider the value of irrigation in agricultural production; however, comparison between studies is difficult. There are many different ways to characterize "value," and the studies take a number of different approaches to quantify the "value" of water for irrigation in the agricultural sector. This project will critically review each study, and carefully identify the value construct measured. Importantly, information in each study is converted to a common metric of value that can be compared across studies and used in policy analysis.