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## **Role of Farm Ponds In Basin Runoff and Farm Water Security**

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### **Abstract Text:**

Farm ponds have been built in Georgia as elsewhere under a variety of government programs, and by farmers even when no programs have been available. Originally built for livestock watering, rural fire protection, and recreation, they are now often seen as structures to retain off-season rains. In a region without federal reservoirs or canal structures for irrigation water storage and delivery, on-farm ponds became the primary water source for the growing irrigation industry in the Southeast. However, limited capacity and recent unreliability of ponds during periods of drought have caused increasing dependence on groundwater supplies and consequent lowering of groundwater tables. Many farmers are looking again at farm ponds for water supply. Using GIS and limited hydrologic modeling, we described sizes, water storage potential, and potential evaporative water losses from Georgia. We compared time shifts in losses of water to area watersheds from runoff versus evaporation. With growing pressure for use of water in non-agriculture areas, Southeast farmers are seeking government assistance to secure their own water supplies using ponds and regional reservoirs to capture winter rains. We explored the potential impact from addition of 1000 ponds on runoff from the watersheds, and amount of new water that could be available for irrigation.

### **Impact Statement:**

Decision makers are provided facts as they consider continuing or expanding funding mechanisms for farm pond cost share. Florida and Georgia regulators who permit withdrawals from ponds and from downstream locations are given inputs to permitting decisions. Farmers gain appreciation of size of ponds needed for effective irrigation supplies and learn impacts of their use on downstream users.