

1096-P1-2518      **Kathleen R Fowler\*** ([kfowler@clarkson.edu](mailto:kfowler@clarkson.edu)), 8 Clarkson Ave, Box 5815, Department of Mathematics, Potsdam, NY 13699. *Multi-level Undergraduate Research in Sustainable Water Use for Agriculture Management.*

We describe how a real-world application in sustainability was used for undergraduate research with students in varying stages of their education. The focus on this work is understanding the trade-offs in practices for berry farming in the Pajaro Valley of California. The groundwater supply is being overdrawn due in part to agricultural pumping. We are trying to understand how changes in planting schedules could help lessen the impact, which is currently resulting in seawater intrusion along the coast. To this end, we use mathematical modeling, optimization, and simulation to gain insight and seek solutions. Undergraduate students, ranging from pre-freshmen to seniors, have made significant progress on this work while simultaneously gaining an appreciation for mathematics and its role in planning for the availability of future natural resources. (Received September 17, 2013)