

1086-H5-1117 **Katie Fowler*** (kfowler@clarkson.edu), Department of Mathematics, Clarkson University, Box 5815, Potsdam, NY 13699. *Crop Rotation Modeling to Meet A Sustainable Water Yield.*

The Pacific Coast of California, is known for berry farming, a water intensive industry. The valley's aquifer is overdrawn, causing seawater intrusion and threatening freshwater resources. We investigate ways to reduce the aquifer draw by analyzing alternative farming techniques. This is accomplished by creating a mathematical farm model and optimization strategy to design farming approaches that meet a sustainable water yield constraint. Furthermore, we consider surface water analysis as a means to supplement the aquifer for farming use. These results were produced at a focused, collaborative sustainability workshop at the American Institute of Mathematics and have been the focus of several undergraduate and graduate research projects. Moreover, the underlying modeling ideas can be used to introduce simple modeling approaches in the classroom at a variety of levels. (Received September 19, 2012)