Variable Rate Water Application
Through Sprinkler Irrigation

B. A. King
Dep. of Agricultural Engineering
University of Idaho
Aberdeen, Idaho

R. A. Brady
Agricultural Consultant
Santa Cruz, California

I. R. McCann
Dep. of Agricultural Engineering
University of Idaho
Moscow, Idaho

J. C. Stark
Dep. of Plant, Soil and Entomological Sciences
University of Idaho
Aberdeen, Idaho

The potential to optimize water and chemical application by combining site-specific crop management techniques with continuous-move irrigation systems exists. All of the techniques that can be used to define crop management zones for variable rate chemical application by conventional ground based equipment can be used with continuous-move irrigation systems. Irrigation management zones can be initially defined by in-field sampling of soil texture, soil depth and slope which remain essentially unchanged. Remote sensing using satellite images or low-altitude aerial videography can be used to aid in determining soil texture distribution and establishing crop management zones characterized by similar responses to water or fertilizer application. Remote sensing along with real time field measurements can be used to provide in-season modification to a base site-specific crop management plan. Yield monitoring and crop yield histories can be used to further define crop management zones. The same mapping systems and databases developed for site-specific crop management using conventional variable rate chemical application equipment can be utilized.