Keywords: precision management, field mapping, soil, yield, real-time monitor, scale free

NRC report (1997) stated that precision agriculture is defined as the application of modern information technologies to provide, process, and analyze multisource data of high spatial and temporal resolution for decision making and operations in the management of crop production, and the key difference between conventional management and precision agriculture is the application of modern information technologies. Based on the practice for the last decades, it was recognized the precision management involved four levels of procedure. Level 1 was to describe the spatio-temporal variability, such as soil/elevation mapping, yield/quality mapping, disease/weeds/growth mapping. Level 2 was to understand the variability, including to keep the farmers’ experience, mush up and add the work history and environmental conditions, analyze behind mechanisms, models and assumption of the apparent results of parameters. Level 3 was to make decisions to increase the throughput, looking at increases in the yield/quality under regional constraints, and reducing the cost, or change the cropping system. Level 4 was the action and evaluation, such as to choose actions under the constraints of labor, machinery, etc. Figure 2 shows an example of results of the procedure in those levels. The precision management strategy was available at small to large scale field cropping practices.


Fig. 1 Results during procedure of soil/yield mapping in level 1 and data mushing up in level 2.