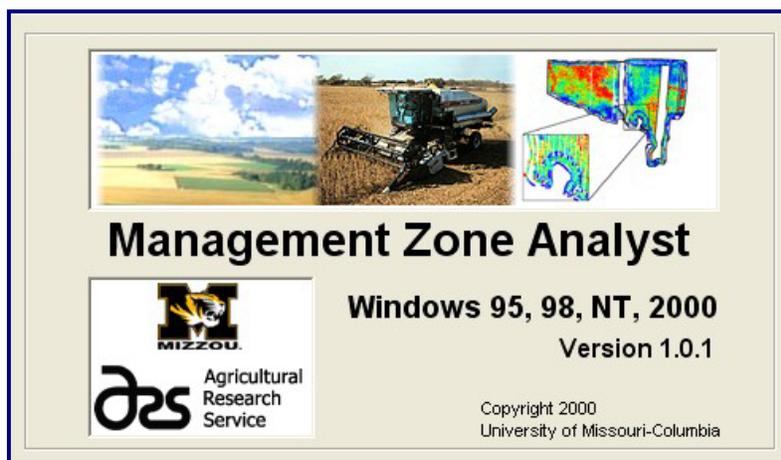


Defining Sub-field Management Zones: Management Zone Analyst (MZA) Software



Fertilizing crops more than they need increases the risk of nutrient contamination of water resources. Because many crop production fields are spatially variable in both soil nutrients and crop nutrient need, conventional uniform fertilizer rates often exceed requirements for some field areas. To better match applications to needs and improve nutrient use efficiency, cost-effective and efficient methods are needed to delineate sub-field management zones within which crop fertilizer needs are more uniform. In field-scale studies, we found that densely-spaced measurements of apparent soil electrical conductivity and GPS-determined elevation were the most useful data for creating management zones related to potential crop productivity and nutrient need for claypan and claypan-like soils in the U.S. Midwest. Zones

created from these sources were much more strongly related to yield map data than were traditional soil surveys. *In response to requests from farmers and consultants, we developed a decision aid, Management Zone Analyst (MZA), to help them quickly process map information into management zones for variable-rate nutrient applications.* The MZA software uses quantitative, georeferenced field information to mathematically divide a field into natural clusters or zones and also helps determine the optimum number of management zones for each field. Our approaches and software are widely used by researchers, commodity organization representatives, and agricultural consultants from at least 39 states and 35 foreign countries.

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Download the MZA software from the web at:
<http://www.ars.usda.gov/services/software/download.htm?softwareid=24&modecode=36-20-15-00>

