CLARK LABS

Meeting the Challenges of Environmental Decision Making with GIS

Case Study | Landuse Planning

GIS Helps to Improve the Quality of Brazilian Wine

The Brazilian tradition of wine cultivation is linked to the Italian colonization in South Brazil in the late 1800s. Attempts initially were made to cultivate European grapes but they proved nonresistant to diseases. American grapes were then cultivated as they were hardier, yet they were unfortunately of a lesser quality.

In order to increase quality, the wine industry would like to reintroduce the cultivation of European grapes. A wine zoning project is now mapping soil, climate and topographic variables in order to best fit the grape with its optimal ecological site. The sponsor is the IBRAVIN (Brazilian Institute of Wine) and the research is a cooperative effort between EMBRAPA (Brazilian Enterprise for Agricultural Research), FEPAGRO (State Foundation for Agricultural Research) and the UFRGS (Federal University of Rio Grande do Sul).

The mapped area includes the whole traditional wine region, a window of more than 13,000 km2. Soils have been surveyed by EMBRAPA. The digitizing and map design have been produced by Universidade Federal do Rio Grande do Sul Centro de Ecologia using IDRISI and CartaLinx. The GIS database contains information on the soil sample analysis as well as the soil profiles (location, physical and chemical characteristics). In conjunction, a DTM was generated for the whole area. Climatic data has been analyzed and climatic variables, such as rainfall, have been estimated for the study region.

This analysis will provide IBRAVIN with the necessary tools to define suitable areas for grape cultivation as well as what types of grapes fit particular areas, given the ecological characteristic of the site.