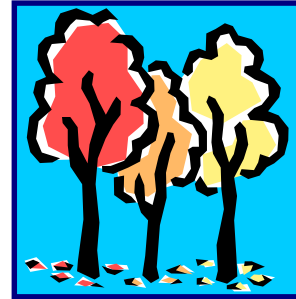


EXSYS Case Study

Forest Inventory – Quality and Quantity Analysis

University of Georgia School of Forestry

Traditionally, expert foresters who are familiar with forest topography and timber quality conduct forest inventories. Forest inventories are defined in mathematical procedures for obtaining statistics on the quality and quantity of standing forest timber. A knowledge automation system in forest inventory is appropriate since the best sampling method and its cost depend on several quantitative, qualitative and other intangible factors, whose influence can best be expressed as a set of rules.



This knowledge automation system considers the two most widely used forest inventory sampling procedures: Line Plot and Point Sampling, each of which can be stratified. The system recommends an appropriate sampling procedure. It also gives the plot size to be used for sampling and estimates the cost of the inventory procedure. The major criterion for selecting the sampling method is the estimated relative cost of the procedure as a function of the desired level of accuracy, and the forest topography.

The development of the knowledge automation system consisted of several discussions with doctoral students at the University of Georgia School of Forestry and several meetings with experts to elicit the knowledge and identify the pertinent factors. After the system was ready, it was successfully validated and tested by other experts in the School of Forestry. They expressed complete satisfaction with the knowledge automation system recommendations and pronounced it to be very reliable under various test scenarios.