

Piyanan Pipatsitee 2010: Decision Support System of Sugarcane Varieties Selection for Planting Area. Master of Science (Agricultural Information Technology), Major Field: Agricultural Information Technology, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Prasert Chatwachirawong, M.S. 115 pages.

Decision support system of sugarcane varietal selection for specific planting areas were developed by PHP, HTML and Minnesota mapserver based on Microsoft Windows operating system. PHP language was used to solve the module of variety selection. Whereas HTML language was used to develop the user interfaces. Minnesota mapserver software was geographical information system (GIS) in which use to display appropriate sugarcane planting areas on the maps. The information of commercial sugarcane varieties were collected from the progress reports of Office of the Cane and Sugar Board, Department of Agriculture, and Kasetsart University. Each sugarcane variety might be diverse adaptation under different environmental conditions. Five major commercial varieties (K84-200, LK92-11, K88-92, KK3 and UT3) were classified based on 3 characteristics (growth habit, sucrose accumulation, and red-rot-wilt disease reaction). The information about soil and climate conditions were collected covering 47 provinces of sugarcane planting areas. There were eleven soil textures covering 62 soil series groups (or 337 soil series). The major soil series were Kamphaeng Saen (Ks), Satuk (Suk), Khorat (Kt), Roi Et (Re), Kamphaeng Phet (Kp), etc. The average amount of rainfall and temperature were 1,433 millimeters per year and 22.57-28.16 degree celcius, respectively. The decision support system for selecting sugarcane varieties and appropriated planting area of selected varieties were shown on the internet through <http://agri.kps.ku.ac.th:8080/pinan>. The systems will help the farmers make decision for selecting the best sugarcane varieties for the specific planting areas. These areas could be drawn and shown on the regional maps in Thailand.

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Thesis Advisor's signature