

The role of modeling in the innovation of sustainable cassava production systems

Vinai Sarawat

Khon Kaen Field Crop Research Center, OARD3, Dept .of Agriculture, Thailand

Sukit Ratanasriwong

Roiet Technical and Production Resources Service Center, OARD4, Dept .of Agriculture, Thailand.

and Attachai Jintrawet

Soil Sci & Conservation, and Multiple Cropping Center, Faculty of Agriculture, Chiang Mai University, Chiang Mai, Thailand

Abstract

In Thailand, cassava is cultivated mainly for use as animal feed or in industrial processing for ethanol and other products. A major drawback to cassava, though, is that more or less continuous cultivation of the crop on low fertility soils may lead to a sharp decline in soil fertility and to serious environmental and social problems, undermining the sustainability of cassava-based production systems. With the GUMCAS cassava model and GIS tools, we have developed and are widely disseminating improved production options suitable for a given ecosystems. The GUMCAS cassava model, under the Decision Support System for Agrotechnology Transfer (DSSAT35) version 3.5, was used extensively for studies associated with cassava crop management, resources management, and many other applications.

Using the GUMCAS cassava model and farmer participatory methods at provincial and the farm levels, teams of farmers, researchers and extension officers are successfully integrating these technologies into upland cassava-based systems on a large scale. In Roi Et province, for example, an estimated 1,000 farmers have adopted practices such as better fertilizer management, and the use of suitable cassava varieties for their environments.

KEYWORDS: GUMCAS cassava model, ethanol