Process Crop Models: RICEMOD

Description	RICEMOD is a FORTRAN and BASIC based ecophysiological model for irrigated rice production. It includes a number of physical parameters, including accommodation of subroutines dealing with soil and plant chemistry as well as physical processes of the atmospheric environment. The model is very sensitive to soil parameters and has been expanded to consider soil water deficit. Model components include maximum leaf area index, timings of plant growth initiation and harvest, radiation-use efficiency (RUE), and harvest index (HI).
Appropriate Use	To study the relative constraining effects of radiation, leaf blade nitrogen content, respiration rate, and assimilate partitioning on rice plant growth. Useful for predicting future production scenarios. Does not include the influence of CO_2.
Scope	All locations; agricultural sector; site-specific.
Key Output	Total area index (LA1, leaves and stem), growth rates, dry weights, dry matter partitioning, grain yield, number of grains, CO_2 assimilation, amount of radiation absorbed by the canopy.
Key Input	Data intensive; requires soil, plant, and atmospheric data (rainfall, pan evaporation, radiation, minimum and maximum temperature, day length).
Ease of Use	Relatively easy to use, although requires some expertise and is fairly data intensive.
Training Required	Requires knowledge of soil physical properties and some background in agronomics.
Training Available	IRRI (see Contacts below) offers training.
Computer Requirements	Programmed in FORTRAN IV and BASIC. Requires an IBM-compatible PC 370/135.
Documentation	McMennary, J. and J.C. O'Toole. 1985. RICEMOD: A Physiologically-Based Rice Growth Model. IRRI research paper series #87. 1099 Manila, The Philippines.
Applications	Used to indicate leaf water stress and predict the growth and yield component of different rice varieties in a number of rice-producing countries, including the Philippines.
Contacts for Tools, Documentation, Technical Assistance	Dr. John Sheehy, Chairman of the GCTE Rice Working Group, IRRI, PO Box 933, 1099 Manila, The Philippines; Tel: 63.2.8181926/884869; Fax: 63.2.8178470/8182087; e-mail: irri@cgiar.com; website: http://www.cgiar.org/irri.
Cost	Contact IRRI for information.
References	See Documentation above.