



Short course on *Cropping System Models*

Applications in Land Resource Management

22-26 September 2014

ICRISAT, Patancheru, Telangana, India

International Education Center





Course Overview:

The program will describe a practical approach for simulating effects of soil, weather, management, and genetic factors on crop production. Instructors will explain how crop growth and development, water use, uptake of water and nutrients and carbon dynamics are simulated. It will cover procedures for collecting and managing crop, weather and soil data towards adapting models for applications. Participants will analyze management alternatives for single seasons and for crop rotations. Applications of models for studying water and nutrient management and adaptation to climate change will be emphasized.

Lectures will alternate with hands-on assignments using the DSSAT crop models and software package. Ample time will be used to discuss capabilities and limitations of the models and appropriate methods for their use.

A Certificate of Completion will be provided upon conclusion of the course. Enrollment is limited to 20 registrants.



Short Course on Cropping System Models Applications in Land Resource Management

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ICRISAT, Patancheru 502 324, Telangana

Course Topics

1. Overview of cropping systems models and DSSAT software
2. Modeling climate effects on crop growth and potential yield
3. Simulating soil water dynamics and crop responses
4. Analysis of crop water requirements and water productivity as affected by climate, soil properties, and management
5. Simulating soil N and carbon dynamics and crop responses to N
6. Experiments and data requirements for adapting and using crop models for new regions and situations
7. Genetic factors including new virtual cultivar technologies that affect crop productivity, water and nutrient use
8. Analyzing risks and uncertainties due to climate variability
9. Simulating crop rotation/sequence and conservation management for sustainable intensification under low-input agriculture
10. Hands-on analyses of cropping systems for these topics

Instructors

Dr Kenneth J Boote, Dr Gerrit Hoogenboom and Dr Cheryl Porter



Dr Boote is a Professor of Crop Physiology in the Agronomy Department at UF. He has taught courses on crop physiology and crop modeling for over 25 years. His research includes physiological responses of crops to water, N, temperature, CO₂, and pest damage. He, Dr Jim Jones, and Dr Hoogenboom have co-developed many of the models in the DSSAT system. He has over 200 refereed publications including many scientific papers on crop model development, evaluation, and application to a wide range of issues. He has contributed to many projects on climate change impacts on crops and is presently co-coordinator for crop modeling with the Agricultural Model Intercomparison and Improvement Project (AgMIP).



Dr Gerrit Hoogenboom is the Director of AgWeatherNet and Professor of Agrometeorology at Washington State University. He has over 25 years of experience in research, education and outreach in agricultural and environmental engineering. He has specialized in the development and application of crop simulation models and decision support systems and he currently coordinates the development of the Decision Support System for Agrotechnology Transfer (DSSAT), a crop modeling system that is being used world-wide. He frequently organizes and facilitates international training workshops on crop modeling and decision support systems. He has published over 200 scientific papers in refereed journals as well as numerous book chapters and proceedings. He is an Editor for Agricultural Systems, Journal of Agricultural Science (Cambridge), Climate Research, the Brazilian Journal of Agrometeorology, and Scientia Agricola.



Dr Cheryl Porter, UF software engineer, has been part of the DSSAT development team since 1998, contributing to modularization of the Cropping System Model; development of the DSSAT-CENTURY, soil and plant phosphorus modules; and other DSSAT improvements. She has participated in many DSSAT

workshops as software support and instructor. She is actively involved in DSSAT-CSM model testing, documentation, application, and education. She is co-lead of the Agricultural Model Intercomparison and Improvement Project (AgMIP) Information Technologies (IT) Team since 2010 and has led AgMIP's development of data interoperability standards and products.

Who should attend?

- Graduate students
- Soil Scientists, Agronomists, Agricultural Engineers, Economists
- Environmental Consultants, Regulators and Scientists
- Extension Agents, Crops Modellers
- Others seeking training in application of cropping systems models for sustainable production assessment, research on adaptation of cropping systems to climate change, and management systems for reducing water and nutrient use.

Five Benefits

1. Learn the basic functions of a Cropping System Model
2. Gain understanding of basic concepts of modeling crops and soils
3. Receive specialized, hands-on training in the DSSAT Cropping System Model and its applications
4. Learn how to make use of cropping system models to evaluate long term field experiments
5. Learn how to use the models for applications in water and nutrient management and climate change issues

Registration

Enrollment in this course is limited to 20 participants, and registrations will be accepted on a first-come, first-served basis. Advance registration is required and we encourage your early registration to secure a seat in this course. Registration fees will not be refunded after the cancellation deadline.

Course fee

Indian Participants	₹36,000
International Participants	US\$650

Fee includes

The course fee includes a single license of DSSAT Version 4.6, book titled 'Understanding Options for Agricultural Production' and electronic copies of lecture notes and sample exercises. Meals and refreshments will be provided including on-campus accommodation (twin sharing in flats or single in dormitory). Fee does not include travel costs to and from ICRISAT.

To register, contact:

Rosana P Mula, Coordinator
Learning Systems Unit
Knowledge Sharing and Innovation
ICRISAT, Patancheru 502 324, Telangana, India
Email: LSU@cgiar.org
Phone: +91-40-30713361 or +91-40-30713317
Fax: +91-40-39713074

Payment by demand draft (in INR or USD) favoring ICRISAT, payable at Hyderabad, must accompany the registration form.



Course Agenda

22-25 September	08:30 – 16:30
26 September	08:30 – 15:00

Timeline:

Last date for receipt of application	14 August 2014
Last date for cancellation	18 August 2014

Training Location:

ICRISAT campus,
Patancheru 502 324,
near Hyderabad,
Telangana, India.

Course Instructors:

Dr Kenneth J Boote
Professor, Agronomy Dept.
University of Florida, IFAS
Gainesville, FL 32611-0500, USA.
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Phone: 352-273-2215

Dr Gerrit Hoogenboom
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Registration Form

Part A: Participant's Details

Name in Full: _____
(As you would like it to appear in your certificate)

Affiliation: _____

Address: _____

Country: _____

Email: _____

Telephone: _____ Fax: _____

Part B: Background Information

Academic Qualifications: _____
(highest to first degree)

Current Organization/University: _____

Relevant areas of interest: _____

Part C: Please tell us why you think attending this course will be useful for you.

(Use separate sheet; no more than 200 words)

Signature: _____ Date: _____

Completed form along with the course fee by Demand Draft in favor of ICRISAT,
payable at Hyderabad, India, must be sent to:

Learning Systems Unit (LSU)
Knowledge Sharing and Innovation
ICRISAT, Patancheru 502 324
Telangana, India.

Phone: +91 40 30713361; Fax: +91-40-3071-3074 or 3071-3075

Email: LSU@cgiar.org

Last date for receipt of application: 14 Aug 2014

Last date for cancellation: 18 Aug 2014

Accepted participants will be notified by: 21 Aug 2014



International Education Center (IEC)

To help improve the sustainability of agriculture and natural resources in developing nations, the University of Florida (UF) has launched a new education center with the nonprofit International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

The International Education Center (IEC) is based at the ICRISAT headquarters in Hyderabad, capitol of the Andhra Pradesh state in South Central India. The center's goals include enhancing sustainability of agriculture and natural resources, and spurring greater collaboration between UF and the counterparts from institutions in the region.

IEC will promote educational (including research and extension) activities related to agriculture and natural resources, with the primary goals of fostering technology transfer, generating new knowledge, and extending the knowledge thus gained to solve practical problems. IEC will serve as a focal point for consortium members in offering educational programs in India and other countries in South and Southeast Asia, using various modes of delivery, and will promote IEC excellence in the region for collaboration in capacity building, education, and research.

We invite you to explore our website and contact program directors at IEC with any questions or for additional information.

Further information about the joint Center is available:

from UF,
Dr. K. Ramesh Reddy
Email: krr@ufl.edu

from ICRISAT,
Dr. Guntuku Dileepkumar
Email: g.dileepkumar@cgiar.org

Website: www.iec.ufic.ufl.edu

