DSSAT 2012

International Training Program
Decision Support System for Agrotechnology Transfer

Assessing Crop Production, Nutrient Management, Climatic Risk and Environmental Sustainability with Simulation Models

May 14 - 19, 2012

The University of Georgia
College of Agricultural and Environmental Sciences
Griffin, Georgia, USA

DSSAT Foundation

The University of Florida
Washington State University
International Fertilizer Development Center
International Consortium for Agricultural Systems Applications

1785
The University of Georgia

Introduction & Potential Production

Day	Hour	Activity	Responsibility
Monday			
May 14	**0830**	**Registration** **Computer Setup**	A. Cain D.M. Evans
	0900	**Welcome**	G. Hoogenboom
		Introduction of Participants and Faculty	G. Hoogenboom
	0930	**Administrative Issues** **Computer Setup Issues**	A. Cain D.M. Evans
		Goals, Course Outline, Schedule	G. Hoogenboom
	1000	**Break**	
	1030	**History and Overview of DSSAT** **Example applications**	J.W. Jones
Reading/Reference:		*Uehara and Tsuji Chapter in Kluwer book, pp. 1-7* *Jones et al. Chapter in Kluwer book, pp. 157-178*	
	1115	**Installation of DSSAT Version 4.5 Software** **Overview of DSSAT**	G. Hoogenboom/C.H. Porter
Reading/Reference		*DSSAT V4 Volume 1* *Readme and Install files*	
	1145	**Exercises: Running Crop Models**	G. Hoogenboom/C.H. Porter
	1200	**Lunch, Naomi Chapman Woodroof Agricultural Pavilion**	
	1300	**Simulating Phenological Development**	K. J. Boote
Reading/Reference		*Boote et al. chapter in Kluwer book, pp. 99-128*	
	1400	**Introduction to Sensitivity Analysis Tool**	C.H. Porter
	1415	**Exercises: Sensitivity Analysis Tools**	G. Hoogenboom/C.H. Porter
	1500	**Break**	
	1530	**Simulating Basic Growth Processes**	K.J. Boote
Reading/Reference		*Jones et al., Eur. J. Agron. 18(2003):235-265* *Boote et al. chapter in Kluwer book, pp. 99-128*	

	Ritchie et al. chapter in Kluwer book, pp. 79-98	
1630	**Creating FileX: Potential Production**	C.H. Porter/G. Hoogenboom
Reading/Reference	*DSSAT V3.5 Volume 2-1, pp. 1-93* *DSSAT V3.5 Volume 1-4, pp. 111-143* *DSSAT V4.0 Volume 2, XBuild User's Guide*	
1700	**Exercises: Simulating Potential Production**	G. Hoogenboom/C.H. Porter
1800	**Reception, Student Learning Center (SLC)**	Art Cain
2000	**Adjourn**	

Weather & Genetic Coefficients

Day	Hour	Activity	Responsibility
Tuesday			
May 15	**0830**	**Access to library facilities and other resources**	R.W. Cannon
	0845	**Feedback on exercises and software**	G. Hoogenboom
	0900	**Weather Data Inputs and Utilities**	G. Hoogenboom
Reading/Reference		*DSSAT v3.5 Volume 3-3*	
	0915	**Exercises: Weather Data Files**	G. Hoogenboom/C.H. Porter
	1015	**Break**	
	1045	**Minimum Data Set Concept**	G. Hoogenboom
Reading/Reference		*Hunt and Boote chapter in Kluwer book, pp. 9-40*	
	1100	**Learning the DSSAT File System**	G. Hoogenboom
Reading/Reference		*DSSAT V3.5 Volume 2, Chapter 1*	
	1115	**Concept of Genetic Coefficients** **Species vs. Ecotype vs. Cultivar Coefficients**	K. J. Boote
Reading/Reference		*CERES-Maize Species & CERES-Rice Species Definitions* *CROPGRO Species &; CROPGRO Cultivar Definition files* *Boote et al. chapter in Kluwer book, pp. 99-128* *Ritchie et al. chapter in Kluwer book, pp. 79-98*	
	1200	**Lunch, Naomi Chapman Woodroof Agricultural Pavilion**	
	1300	**Genetic Coefficients – CROPGRO & CERES**	K.J. Boote
	1330	**Estimating Genetic Coefficients, Concepts**	K.J. Boote
Reading/Reference		*Mavromatis et al., Crop Science 42(2002):76-89* *Pathak et al., Trans ASABE 50(2007):2295-2302*	
	1430	**Exercises: Cultivar Sensitivity Analyses**	G. Hoogenboom/C.H. Porter
Reading/Reference		*DSSAT V3.5 Volume 3-4, pp. 201-233* *Boote et al., Agric. Systems 70(2001):395-420.*	
	1500	**Break**	
	1530	**Tools to Estimate Cultivar Coefficients**	C.H. Porter

Reading/Reference	*Hunt et al. Agron. J. 85(1993):1090-1094* *Hoogenboom et al., Field Crops Research 90(2004):145-163* *Anothai et al., Field Crops Research 108(2008):169-178* *He et al., Agric. Systems 103(2010) :256-264* *Jones et al. Advances in Ag. Systems Modeling 2(2011):365-393*	
1600	**Exercises: Cultivar Coefficient Calibration**	G. Hoogenboom/C.H. Porter
1730	**Adjourn**	

Water Limited Production, Soils & Experimental Data

Day	Hour	Activity	Responsibility
Wednesday			
May 16	**0830**	**Feedback on exercises and software**	G. Hoogenboom
	0900	**Simulating Water Limited Production** **Soil and Flood Water Balance in Rice**	J.W. Jones
Reading/Reference		*Ritchie chapter in Kluwer book, pp. 41-54* *DSSAT V3.5 Volume 2-1, pp. 1-93* *DSSAT V3.5 Volume 1-4, pp. 111-143* *DSSAT V4.0 Volume 2, XBuild User's Guide*	
	1000	**Group Picture**	S. Omahen
	1015	**Break**	
	1045	**Soil Data Inputs and Utilities**	G. Hoogenboom
Reading/Reference		*DSSAT V3.5 Volume 1-3, pp. 49-90* *DSSAT V4.0 Volume 2* *Gijsman et al., Eur. J. Agron. 18(2002):75-105* *Gijsman et al., Comp and Electronics in Agric 56(2007):85-100*	
	1100	**Exercises: Soil Data Files**	G. Hoogenboom/C.H. Porter
	1200	**Lunch, The Research and Education Garden**	
	1300	**Creating FileX: Water Balance On**	C.H. Porter/G. Hoogenboom
	1330	**Exercises: Water Limited Production**	G. Hoogenboom/C.H. Porter
	1500	**Break**	
	1530	**Experimental Data Collection - Model Evaluation**	K. J. Boote
Reading/Reference		*DSSAT V3.5 Volume 4-7 & 4-8, pp. 203-233*	
	1615	**Experimental Data Files and Utilities**	G. Hoogenboom
Reading/Reference		*Bostick et al., Agron. J. 96(2004):853-856* *Hunt et al., Agric. Systems 70(2001):477-492*	
	1630	**Exercises: Experimental Data Files** **Exercises: Model Calibration**	G. Hoogenboom/C.H. Porter K. J. Boote/G. Hoogenboom
	1730	**Adjourn**	

Nitrogen and Phosphorus Limited Production

Day	Hour	Activity	Responsibility
Thursday			
May 17	**0830**	**Feedback on Exercises and Software**	G. Hoogenboom
	0900	**Simulating Nitrogen Limited Production Processes in the Soil**	G. Hoogenboom
Reading/Reference		*Godwin and Singh chapter in Kluwer book, pp. 55-78* *Gijsman et al., Agron. J. 94(2002):462-474*	
	1000	**Simulating Nitrogen Limited Production Processes in the Plant**	K.J. Boote
Reading/Reference		*Bowen et al. chapter in Kluwer book, pp. 189-204*	
	1030	**Break**	
	1100	**Simulating Phosphorus Limited Production Processes in the Soil and Plant**	C.H. Porter
Reading/Reference		*Dzotsi et al. Ecol Modelling 221(2010): 2839-284*	
	1145	**Creating FileX: Water and N Balance On**	C.H. Porter/G. Hoogenboom
Reading/Reference		*DSSAT V3.5 Volume 2-1, pp. 1-93* *DSSAT V3.5 Volume 1-4, pp. 111-143* *DSSAT V4.0 Volume 2, XBuild User's Guide*	
	1200	**Lunch, Naomi Chapman Woodroof Agricultural Pavilion**	
	1300	**Exercises: Nitrogen Limited Production**	G. Hoogenboom/C.H. Porter
	1500	**Break**	
	1530	**Importance of Soil Inputs in Computer Simulation**	G. Hoogenboom
Reading/Reference		*Gijsman et al., Computers and Electronics in Agric. 56(2007):85-100* *Dardanelli et al., Trans. ASABE 46(2003):1265-1275*	
	1600	**Exercises: Phosphorus Limited Production**	C.H. Porter/G. Hoogenboom
	1730	**Adjourn**	

Evaluating Risk and Sustainability

Day	Hour	Activity	Responsibility
Friday			
May 18	**0830**	**Feedback on Exercises and Software**	G. Hoogenboom
	0900	**Uncertainty, Risk, BMPs, and Sustainability**	G. Hoogenboom
Reading/Reference		*DSSATV3.5 Volume 3-1, pp. 1-66* *Thornton and Wilkens chapter in Kluwer book, pp. 329-345* *Bowen et al. chapter in Kluwer book, pp. 313-327* *Tojo Soler et al., Eur. J. Agronomy 27(2007):165-177*	
	1000	**Break**	
	1030	**Creating FileX: Seasonal Analysis**	C.H. Porter/G. Hoogenboom
Reading/Reference		*DSSAT V3.5 Volume 2-1, pp. 1-93* *DSSAT V3.5 Volume 1-4, pp. 111-143*	
	1100	**Exercises: Seasonal Analysis**	G. Hoogenboom/C.H. Porter
	1200	**Lunch, Naomi Chapman Woodroof Agricultural Pavilion**	
	1330	**Exercises: Continued** **Seasonal Analysis** **Work with your Personal Experimental Data**	
	1500	**Break**	
	1530	**Cropping Systems – Simulating Crop Rotations**	U. Singh/G. Hoogenboom
	1630	**Creating FileX: Rotation/Sequence Analysis**	C.H. Porter/G. Hoogenboom
Reading/Reference		*DSSAT V3.5 Volume 2-1, pp. 1-93* *DSSAT V3.5 Volume 1-4, pp. 111-143*	
	1700	**Exercises: Rotation/Sequence Analysis**	G. Hoogenboom /C.H. Porter
Reading/Reference		*DSSAT V3.5 Volume 3-2, pp. 67-127*	
	1730	**Adjourn**	
	1900	**Dinner @ Local Restaurant**	A. Cain

Model Applications

Day	Hour	Activity	Responsibility
Saturday			
May 19	**0830**	**Feedback on Exercises and Software**	G. Hoogenboom
	0900	**Yield Improvement and Yield Gap Analysis** **Global Futures Project**	K.J. Boote
Reading/Reference		*White chapter in Kluwer book, pp. 179-188* *Boote et al., Agric. Systems 70(2001):395-420* *Naab et al., Agron. J. 96(2004):1231-1242*	
	1000	**Break**	
	1030	**Exercises: Continued** **Seasonal Analysis** **Crop Rotation Analysis** **Work with your Personal Experimental Data**	
	1200	**Lunch, Naomi Chapman Woodroof Agricultural Pavilion**	
	1300	**Climate Change and Climate Variability** **AgMIP Project**	G. Hoogenboom/K.J. Boote
Reading/Reference		*Rosenzweig and Iglesias chapter in Kluwer book, pp. 267-292* *Hammer et al., Agric. Systems 70(2001):515-553* *Hoogenboom, Agric. For. Met. 103(2000):137-157* *Hillel & Rosenzweig: Handbook of Climate Change and Agroecosystems* *White et al., Field Crops Research 124(2011):357-368*	
	1400	**Exercises: Simulating Climate Change Impact**	K.J. Boote/G. Hoogenboom
	1430	**Decision Support Systems for Farmer Applications** **Demonstration:** **SECC: Yield and Climate Tools** **AgWeatherNet & Automated Environmental Monitoring Network**	G. Hoogenboom
	1500	**Group Discussion of Applications and Needs**	K.J. Boote/U. Singh G. Hoogenboom/C.H. Porter
	1530	**Certificates**	A. Cain K.J. Boote/C.H. Porter U. Singh/G. Hoogenboom
	1600	**Adjourn**	