

Future Needs for Effective Model Applications

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- ❖ Users
- ❖ Model Capabilities
- ❖ Data Availability, Accessibility
- ❖ Other Model, Data Issues

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USERS

- ❖ Applications for what?
- ❖ Who will operate the models?
 - Developers
 - Researchers
 - Advisors to:
 - Farmers
 - Policy makers
 - Industry
 - Farmers
- ❖ Automatic Operation?

Model Capabilities

- ❖ Actual Yield
 - Tillage
 - Pests & diseases
 - Spatial variability influences
 - Low inputs
- ❖ Changes in soils
- ❖ Environment effects, sustainability
- ❖ Complex cropping systems (space, time)
- ❖ Genetic X Environment interactions
- ❖ Address policy, management, & scientific issues

Data Availability, Accessibility

- ❖ New measurement methods (e.g., precision agriculture, remote sensing)
- ❖ New capabilities for data access (e.g. Internet)
- ❖ New types of data (e.g., genomics)
- ❖ New technology for processing data (e.g., GIS, optimization techniques)

- ❖ Balance model capabilities and input needs with data availability – need to continually reassess to match our knowledge with capabilities to apply it – where it is needed

Other Model, Data Issues

- ❖ Intellectual Property Rights
- ❖ Modularity for efficient development
- ❖ Data standards for applications

Toward an ICASA Toolkit

❖ Made possible by

- Data standards
- Modular development of models, components
- Data sets
- Willingness of scientific community to share

❖ How to operationalize?

- Internet, CD
- Distributed system

Components of ICASA Toolkit

- DSSAT v3.5
- Model Development and Training Tools (FSE/FST)
- Data Sets for Model Testing - GCTE cooperation
- Farm System Simulator
- Yield Forecast Tools
- Weather Generator, Data Manager
- Crop Management – GIS DSS Tailored Products
- Regional Planning Tool; Options for Development (MGLP)

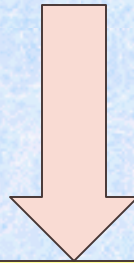
Tools Under Development

- ❖ Modules for crop models
- ❖ Application tools (e.g., optimization)
- ❖ Parameter estimation tools
- ❖ Data sets for model development, testing
- ❖ Decision support packages
 - farm
 - research
 - policy

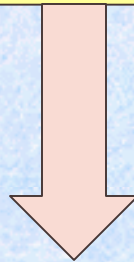
Examples of Tools Under Development

- ❖ Windows Version of DSSAT, Multilingual
- ❖ Modules for Pests, Tillage, Organic Matter,...
- ❖ Pasture Model
- ❖ Watershed Management Planning Model
- ❖ Other Crops (Cowpea, Pigeonpea, Pasture, ...)
- ❖ Climate Prediction Application Tools
- ❖ Data Base Management, ICASA Data Standards
- ❖ Farm Models with Livestock, Crop Enterprises
- ❖ ...

inputs



Thank You



outputs

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