

ACTA

Le réseau des instituts
des filières animales et végétales



INRA

ARVALIS
Institut du végétal



MINISTÈRE
DE L'ALIMENTATION,
DE L'AGRICULTURE
ET DE LA PÊCHE

avec la contribution financière du
compte d'affectation spéciale
«Développement agricole et rural»

« What's new, what's next in dynamic system modeling in agronomy »

RMT modélisation

Seminar September 7, 2010 (Paris)

Daniel Wallach (INRA)

François Piraux (Arvalis)

François Brun (ACTA)

David Makowski (INRA)

www.modelia.org



RMT modélisation – a modeling network



- **Foster collaboration to improve development and applications of dynamic system models for agricultural development**
 - **Oriented toward generic questions**
 - **Model evaluation, project organization**
 - **Funded by the Ministry of Agriculture 2007-2010**
 - **Possibility of prolongation to 2012 (and beyond?)**
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Partners

- **Agricultural Technical Institutes (ACTA network)**
 - **ARVALIS - Institut du végétal**
 - **L'Association de Coordination Technique Agricole - ACTA**
 - **Le Centre Technique Interprofessionnel des Oléagineux Métropolitains – CETIOM**
 - **L'Institut de l'élevage - IE**
 - **L'Institut Technique Français de la Betterave Industrielle - ITB**
 - **L'Institut Technique du Porc - IFIP**
 - **Le Centre Technique Interprofessionnel des Fruits et Légumes**
 - **L'institut français de la vigne et du vin IFVV – (Entav-ITV France)**
- **French National Institute of Agronomic Research (INRA)**
 - **Environnement et Agronomie (EA)**
 - **Physiologie Animale et Système d'élevage (PHASE)**
 - **Mathématiques et Informatique Appliquées (MIA)**
- **Technical education (agricultural high school ...)**
 - **L'établissement Public Local d'Enseignement et de Formation Professionnelle Agricole Public de Toulouse Auzeville (EPLEFPA)**



Activities

➤ Information exchange

- www.modelia.org
- newsletter

➤ Seminars

- Modeling for integrated pest or crop mgt
- Plant architecture models for agricultural dev
- Relationship of modeling and experimentation
- **Conceptual modeling (coming later this year)**



➤ **Short courses**

- **How to manage modeler-programmer interactions**
- **How to use real-time data to improve model predictions**
- **Using UML for model description**

➤ **In-depth studies**

- **Funded project “attach an error estimate to model outputs”**
- **Survey and analysis of modeling project organization**



Proposal 2010-2012

- Continue information exchange, seminars, short courses
- Two major subjects
 - Model evaluation
 - Improving model usefulness by better integration of modeling, expert opinion and experimental results
- Organize a consultancy activity



Today's program

- 3 speakers from outside France
 - Hear about modeling research in U.S., Denmark
- Also talks about recent modeling work in France
- Asked speakers to propose debate topics, for discussion with you.



Program

9h30	Welcome coffee
10h (15 min)	Introduction
10h15 (30 min)	Daniel Wallach (INRA, Toulouse) . Model calibration and model error.
10h45 (45 min)	Lajpat Ahuja. Enhancing and Extending Field Research with Modeling of Agricultural Systems, and International Collaboration for this Goal
11h30 (20 min)	Hélène Raynal (INRA, RECORD team.) Introduction to debate: what role for modeling and simulation frameworks ?
11h50 (40 min)	Debate : modeling frame work and international collaboration
12h30 (30 min)	François Brun (ACTA). Modeling for decision support and modeling for impact assessment. How do the modeling projects differ?
13h00	LUNCH
14h15 (45 min)	James W. Jones. Challenges of Modeling Cropping Systems Responses and Adaptation to a Variable and Changing Climate.
15h00 (30 min)	Debate topic: tradeoffs between complexity and functionality
15h30 (45 min)	Nicholas John Hutchings . The future of agricultural modeling; opportunities and dangers.
16h15 (30 min)	Debate topic: How can we improve the performance of modelling projects?
16h45 (30 min)	David Makowski (INRA, Grignon) . How to synthesize different types of knowledge using models?
17h15 (30 min)	Debate topic: Is it possible to falsify complex models?
17h45	General conclusion

