

## **APSIM Cropping Systems Modeling Training Workshop for CANA**

An APSIM training workshop was held at Rihab Hotel in Rabat, Morocco from the 12-16th January 2015. It involved 14 trainees from Algeria (3), Tunisia (3), Morocco (6), and ICARDA (2) and three trainers from Australia.

The workshop participants progressed through prepared APSIM exercises over the 3 days, interspersed with specific presentations on APSIM science component processes, followed by 2 days working groups of APSIM application by participants. The specific items covered during the first three days include: (1) simulating fallow soil balance and effect of residues, (2) nitrogen movement between organic matter pools, effect of decomposition of crop residues, and effect of residue types, (3) simulating single season crop responses to organic and inorganic nitrogen-inputs and water in wheat cropping systems, (4) simulating multiple seasons of wheat-wheat, wheat legume rotations, soil nitrogen, water and organic matter resets at sowing, soil erosion, and risk analysis using cumulative probability.

During the last 2 days of the workshop, participants break-out into 4 groups: Morocco (2), Algeria (1), Tunisia (1), ICARDA (1), and Australia (1). The groups discussed and designed applications relevant to their current research agenda and needs. The items covered by group members comprise: effect of sowing dates and wheat-weed competition, effect of different soils on final yield, Nitrogen cycling, multiple seasons rotation. At the end of the workshop, each group gave a presentation of the results obtained.

The workshop was seen as very successful by the project team, receiving very positive feedback by the trainees of 3 North African countries. Training certificates were awarded to each of the trainees at the conclusion of the workshop.

It is anticipated that a key scientific outcome of this training workshop will be a robust validation of APSIM across a wide range of growing environments in North African countries. This will establish credibility in APSIM with modelers in the region and internationally that APSIM is a tool capable of realistically simulating a wide range of farming situations, over time making it a modelling tool of choice. It is anticipated that the resultant increased uptake of modelling by North African farming systems scientists will significantly boost research strategy setting and will impact on the way farming systems research questions are formulated and evaluated.

The main impacts expected to arise from this training workshop are in the capacity building domain. Accordingly, this workshop has been designed in a way to maximize a strong legacy of systems analysis and modelling capability to continue beyond the life of the CANA project. It is anticipated that each of the participating partner countries (Algeria, Tunisia and Morocco) will be endowed with networks of farming systems modelers, building sufficient critical mass across the region (rather than in a particular country) to withstand loss of individual modelers.

It is intend to pool the trainees of participating countries and form a somewhat more formal modelling group, so as to build critical mass and help institutionalize modelling within these 3 countries. This reciprocal modelling support leads us to believe that the capacity being developed during this workshop will persist beyond the life of CANA project.