SAMARA: between a Functional Structural Plant Model and an Agronomic Model
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About the model
A deterministic mono crop model for GxExM & ideotype exploration of rice (upl, rf-LL, irrig), and sorghum (grain, sweet, biomass)
Simulation at population scale by extension of detailed simulation of individual plant
Emphasis on adaptive plasticity based on inter-organ competition (Ic)
Emphasis on water management and crop establishment

SarraH crop model*
- Phenology
- Carbon assimilation
- Water Balance
- Crop Management

Ecomeristem FSCM**
- Simulation of phenotypic plasticity (GxE
tillering, leaf senescence, plant height
- Competition for carbon resources, transitory reserve management
- Drought responses (stomata sensitivity to FTSW, Leaf rolling, Senescence)

Ic = index of internal competition (sink/resources)

Some applications on rice

- **Perspectives**
  - Model improvement - to be incorporated
    - N not yet considered
    - CO2 atmospheric response
    - Panicle microclimate
    - Others?
  - On-going and future projects
    - CIAT/CIRAD upland rice breeding for Latin America
    - Embrapa upland rice TPEs
    - Rice-CiAfrica/Rice/CIRAD
    - Ideotype and breeding strategies for CC CCAFS Theme 1.2
    - IRRI ideotypes for Yield Potential