

les dossiers d'**AGROPOLIS** INTERNATIONAL

Expertise of the scientific community



Agronomy

Crops and cropping systems



© F Normand

▲ A cv Cogshall mango tree in full fruit production.

Mango fruit production and quality

Mango ranks fifth in terms of worldwide fruit production. Like other tropical fruit species, mango cropping is hampered by problems affecting yield and quality: alternation of flowering and production between years, variable fruit quality and ripeness, pest and disease control. The lack of knowledge on mango is a barrier to effective mango crop management. The adopted approach involves identifying factors that impact key processes in the mango life cycle and determining which of them farmers could focus on and alter to achieve regular, top quality production using environment-friendly practices. Given the complexity of the processes and many interactions involved, modelling is a preferential tool for synthesizing knowledge.

These studies revealed that in mango there are close, reciprocal, quantitative and temporal relationships between vegetative growth and flowering/fruiting processes. A mango development model is currently being developed based on the phenological features of mango trees and on endogenous

and exogenous (temperature) factors affecting them. It has also been shown that fruit growth and quality development are dependent on the lighting environment and on carbon and water availability. A mango fruit grade and quality development model is currently operational.

Innovative technical operations have been developed and tested in mango orchards on the basis of these results. The two previous models could be combined to build a yield and fruit quality development model applicable on tree and orchard scales. Taking the phenological features, and thus the stages susceptible to pest attacks, into account will pave the way for further combinations with pest models, and ultimately to the development of nonchemical orchard protection techniques.

Contacts: Frédéric Normand, frederic.normand@cirad.fr
& Mathieu Léchaudel, mathieu.lechaudel@cirad.fr