PERPHECLIM ACCAF Project - Perennial fruit crops and forest phenology evolution facing climatic changes

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Phenology is a bio-indicator of climate evolutions. Measurements of phenological stages on perennial species provide actually significant illustrations and assessments of the impact of climate change. Phenology is also one of the main key characteristics of the capacity of adaptation of perennial species, generating questions about their consequences on plant growth and development or on fruit quality.

Predicting phenology evolution and adaptative capacities of perennial species need to override three main methodological limitations: 1) existing observations and associated databases are scattered and sometimes incomplete, rendering difficult implementation of multi-site study of genotype-environment interaction analyses; 2) there are not common protocols to observe phenological stages; 3) access to generic phenological models platforms is still very limited.

In this context, the PERPHECLIM project, which is funded by the Adapting Agriculture and Forestry to Climate Change Meta-Program (ACCAF) from INRA (French National Institute of Agronomic Research), has the objective to develop the necessary infrastructure at INRA level (observatories, information system, modeling tools) to enable partners to study the phenology of various perennial species (grapevine, fruit trees and forest trees). Currently the PERPHECLIM project involves 27 research units in France.

The main activities currently developed are: define protocols and observation forms to observe phenology for various species of interest for the project; organizing observation training; develop generic modeling solutions to simulate phenology (Phenological Modelling Platform and modelling platform solutions); support in building research projects at national and international level; develop environment/genotype observation networks for fruit trees species; develop an information system managing data and documentation concerning phenology.

Finally, PERPHECLIM project aims to build strong collaborations with public (Observatoire des Saisons) and private sector partners (technical institutes) in order to allow a more direct transfer of knowledge.