



Application of phenology models for Climate Services

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Global warming is expected to accelerate the development of plants and insects leading to earlier occurrence of phenological stages than under today's climate. This can alter the exposure of plants to extreme climate events and further change the synchrony between host plants and pest insects. Assessing the implications of earlier development for the exposure to risks is necessary to inform adaptation.

In this contribution we present an analysis of potential impacts of climate change on (i) the risk of early frost in apple orchards and damages to apple fruits due to critically high temperatures, (ii) the time of apple picking, and (iii) the potential of damages caused by the codling moth (*Cydia pomonella* L.), for three different apple cultivars in Switzerland. To this aim, carefully calibrated phenological models for apple trees and the codling moth are run with updated climate change scenarios. The climate scenarios comprises three different emissions scenarios.

To underline the utility of phenological models and data for informing society, we show how this assessment is integrated into a recent initiative to implement National Climate Services in Switzerland in response to the Global Framework for Climate Services issued by the World Meteorological Organisation.