ITALIAN PHENOLOGICAL SCENARIOS 2020-30

Plant phenology, the study of the rhythms of seasonal recurring appearance of phenological phases in plants, is the most simple and effective tool to detect changes in environmental physical factors. Therefore, plant phenology is considered an indicator of climate change (Menzel et al., 2001). The research n. 8 of the Agroscenari Project ("Plant indicators of climate change") has among its targets the realization of phenological scenarios at national scale starting from climate scenarios produced by the Line 1a of the research Project.

PHENOLOGICAL MODELS

For the phenological scenarios realization the IPHEN (Italian PHEnological Network) models were applied. The phenological models developed in the framework of the IPHEN project are based on the accumulation of thermal resources expressed as Normal Heat Hours (NHH) (Mariani et al., 2013). Phenological models were applied to daily thermal fields for the two reference periods PRESENT (2000-2010) and FUTURE (2020-2030). To calculate the NHH, hourly temperatures were obtained for every single map cell by means of the Parton e Logan algorithm (Parton e Logan, 1981). Then the NHH sums were calculated and the corresponding BBCH phases were obtained by means of empirical relations between historical data of both phenology and NHH sums.

RESULTS

All the elaborations show an advance of phenological stages, on average of about 5 days, with peaks, for example in the flowering and ripening of the grapevine, up to 15 days, with standard deviations of 3-5 days.

REFERENCE
