Highlights

* Late spring freezing events, also know as false springs, can be damaging to many plants and thus detrimental both ecologically and economically.
* Plants employ avoidance and protective strategies against false springs but, with climate change advancing spring phenology, such strategies may become less effective.
* Current studies largely simplify the definition of a false spring and fail to incorporate crucial factors such as life stage, location within a forest or canopy, interspecific variation in avoidance and tolerance strategies, and regional differences in climate.
* We highlight the complexity of factors that ultimately drive a plant’s false spring risk and provide a road map for improved metrics.
* We aim to demonstrate how an integrated approach would rapidly advance progress in ecological and climate change studies.