LOCAL WEATHER HAVE DIRECT AND INDIRECT INFLUENCE ON APPLE QUALITY

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In a changing climate, altered temperature and precipitation patterns can affect the production and quality of various crops, such as fruits. However, crop production could also be modified indirectly by weather changes through modifying ecological communities and in turn ecosystem functions.
These ecosystem functions, including biomass decomposition, biological control of pests and pollination, can influence food production and crop quality. Therefore, fruit and seed set can be affected, both directly through temperature-induced effects on crops, and indirectly, through e.g. changes in pollination success.
Apple is a pollination dependent crop sensitive to low temperatures. We evaluated effects of local weather on pollinator visits and pollination success of apples. This was done by observing flower visiting insects and temperature logging in apple orchards in Sweden and Argentina.
We found both direct and indirect effects of local temperatures on apple quality. For example, pollination success increased with temperature at flowering, which was correlated with higher sugar content in ripe fruit.
Furthermore, fruits at harvest were heavier had they developed in higher temperature. We conclude that temperature variations may have several effects on apple production and quality.
Both direct effects of temperatures and responses mediated through changes in pollinator behaviour are of importance. This is important to consider in management decisions related to apple production in a changing climate.