

Climate change as a challenge for Floriculture

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In recent years, Climate Change is one of the most relevant global environmental challenges, catching attention not only from scientists but also politicians, city administration and the population in general. The term, Climate Change, refers to all the alterations, and the consequences on climate on different scales, local to global.

The changes on climate affect variables such as temperature, rainfall, and atmospheric greenhouse gas concentration - GHG (AR6, 2021). These have direct or indirect impacts on Agriculture activities in all sectors, including Floriculture. Some of the concerns of the direct impact reflects in the alteration of the plant cycle due to an increase in temperature, increase in crop respiration rate, alteration in photosynthesis and evapotranspiration processes, pest population resistance, soil mineralization, and efficiency of fertilizer use. Indirectly, the changes in climate leads to the intensity of droughts and floods, soil erosion and modification of organic matter transformation, changes in the occurrence and severity of pests and diseases (De, 2018).

Specific to Floriculture, climate change may induce flowers to fail to bloom or affect the flowering period, reduction on flower size, and out of standard color development, mainly in open field conditions. Higher temperatures can have a direct impact on flowers' volatile fragrances emitting and pigment deterioration. Some other factors had already been observed as a reduction on post-harvest life and poor pollination reflection on seed production (De, 2018).

The challenge nowadays is the development of innovative and sustainable technologies to reduce the

impacts on the productive sector and adaptable to climate change alterations. Many strategies followed up for the conservation, multiplication, production, improvement, and protection of valuable ornamental species and varieties (De, 2018). Many of the new technologies in development follow nature-based solutions (SBN), ensuring environmental and ecological functionality.

Concerning the Floriculture sector, searching for adaptations to some issues, such as elevated temperatures and water restrictions, many solutions have been risen. For example, identification of potential and efficient native ornamental species, species tolerant to high temperatures and low soil water, as well as efficient and sustainable production systems with low emitting of greenhouse gases, including indoor farms.

The development of some structures such as green roofs can clean water runoff of pollutants. Vertical gardens, besides their aesthetical characteristics, are efficient structures to improve air quality and reduce surface temperature, in the built environment.

For gardens, the design and planning should also consider sustainable concepts, creating resilient spaces with efficient use of natural resources with a higher contribution to climate change mitigation.

Climate change remains a major challenge. This topic has been stimulating many actions for the development of research and policies to minimize the impacts of alterations and consequences, which has favored the implementation of sustainable production practices.

References

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