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## Impact of the Increase in Aridity Levels on the Value of Insect-pollination in Drylands: Farmers' Perspective

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### Abstract

Pollinating insects are facing worrying declines in many parts of the world. Farmers in drylands in low and middle income countries are particularly vulnerable to pollinator decline because of the growing dependency on insect-pollination. The increase in the levels of aridity, as a result of climate change, and agricultural intensification are two main factors endangering pollinators in dry areas. Actions for the protection of pollinators depend on farmers' awareness of the importance of insect mediated pollination, the impact of the level of aridity on their perceptions of pollinating insects and how the increase in aridity levels will affect their perceptions in the future. In this study, we conduct a discrete choice experiment with Moroccan farmers to a) explore their preferences for insect mediated pollination and, b) examine the impact of aridity on their preferences and the value they attribute to its benefits. The survey took place in 5 different climatic ranges within the Moroccan territory, dry sub-humid, semi-arid (irrigation-based), semi-arid (rainfall-dependent), arid and hyper-arid, with a total of 492 farmers. Our findings show that farmers have a high willingness to pay for the protection of insect mediated pollination benefits and that the contribution of pollinators to the quality of fruits and vegetables is the most valued benefit. The study demonstrates that the aridity has a strong effect on farmers' preferences and that farmers' willingness to pay increases at higher levels of aridity. It, also, shows that the value that farmers attribute to the benefits of pollinators will increase as a result of climate change.

**Keywords:** Climate change, Discrete choice experiment, insect pollination, level of aridity