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## Farmers Have Too Low Knowledge to Protect and Benefit from Native Pollinators – Insight from Morocco

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### Abstract

In 2016 The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) showed that agricultural production is now twice as dependent on pollinators than five decades ago, but pollinator decline accelerates globally, in particular in agricultural lands. Farmers cannot protect, what they do not see or recognise or value. Knowledgeable farmers are crucial for pollinator protection. In 2016 the knowledge of 110 male and female smallholder farmers (0.4 – 2.5 ha) in the Rabat-Salé-Kenitra region (Morocco) has been assessed by a standardised questionnaire. On average, farmers know only 1.4 pollinator species except honeybees. 23 out of 110 farmers had collaborated with beekeepers, but not for improved pollination of their crops. They had invited the beekeepers to bring hives, because according to local arrangements a farmer providing flowers gets a share of the honey as in kind payment. Despite availability in their agricultural lands no farmer is able to recognise nests of pollinators or predators. Though all farmers produced at least one pollinator dependent crop, only 19% were aware that they need pollinators in their fields. They did not know for which crops pollination is essential, for which crop pollination has great, modest or little impact, they were e.g. much more concerned about pollination of tomato than of apple. As apple flowers in early spring, pollination by honeybees is often hampered by rain or cold days without sun. Farmers lacking knowledge might take wrong decisions in case of crop failure. All farmers enlarged fields reducing valuable pollinator habitats in field edges since the year 2000. Also the farmers increased the use of insecticides and fungicides on average by 54% since 2000. There is very little literature on farmers' knowledge on pollinators, but according to the samples the knowledge in Morocco is comparatively low. There was nearly no difference between literate and illiterate farmers. Therefore, obligatory lessons on pollinators is recommended for primary and secondary schools. Involvement of mass media would be useful.

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