



Blending tradition and science to protect pollinators

WORKING FOR horticulturists and farmers in Brazil, Ghana, India, Kenya, Nepal, Pakistan, South Africa

WORKING TO improve yields by bringing pollinators back to agricultural fields

WORKING WITH Brazil Environment Ministry, Ghana University of Cape Coast, India G.B.Pant Institute and national partners and organizations in seven countries

WORKING THANKS TO the Global Environment Facility and UN Environment Programme

PROTECTING POLLINATORS

Farmers in Ghana plant rows of cassava next to their chili peppers, and plant banana trees in the middle of cocoa plantations. In India, farmers hang bouquets of flowers in their apple trees. And in Brazil, farmers have increased appreciation of a law requiring them to leave a certain portion of their farms as natural habitat. Three seemingly incongruent situations but they have a connection. All are solutions identified by FAO and its partners for dealing with one of the pressing problems agriculture faces today – the loss of pollinators, mainly bees but also other insects and birds. Farmers have adopted these measures in an effort to bring pollinators back to their fields, thanks to the support they receive from FAO's Global Pollination Project.

Bees and other pollinators make enormous contributions to the world's agriculture. In terms of food production, staples such as wheat, maize, potatoes and rice can reproduce without animal pollination. But, most fruits and vegetables, which are increasingly important in global agriculture, cannot.

While the plants themselves will survive, their yields may drop by as much as 90 percent without pollination. This is especially critical considering that 75 percent of all crops have some dependence on pollinators. Plus, crops dependent on pollination are five times more valuable than those that don't need pollination. It all adds up to an enormous

contribution in terms of improved yields. The French National Institute for Agricultural Research has valued pollinators' contributions to global agriculture at more than USD 200 billion a year.

Although pollinators are essential to the world's ecosystems, the services those bees and other pollinators provide freely to agriculture were once taken for granted. It is only recently that pollination has been recognized as an essential element of agronomy, a recognition mainly due to a crisis – the world's pollinators are disappearing. The reasons include loss of habitat, intensive agriculture, indiscriminate use of pesticides and climate change. Climate change is a double issue that not



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only affects pollinator survival, it also alters crop growing seasons, which means that the pollinators may not be available at the time that the crop is in flower and needs the pollination.

Pollinators decline

Global statistics are sketchy, but they show that pollinator populations in several parts of the world are steeply declining. In Europe, where monitoring is more advanced than other parts of the world, there is growing evidence of parallel declines in both wild pollinators and in the plants relying on them.

In recent decades, commercial farmers have relied on domesticated honey bees as pollinators but for some crops, they just are not as effective as their wild brethren. Agronomists now recognize that the most effective, resilient approach to managing pollination requires integrating a diversity of wild species with managed pollinators such as honey bees. FAO's Global Pollination Project focuses on identifying the steps needed to bring wild pollinators back to the fields – steps that vary from crop to crop and farming system to farming system.

The project works with farming communities, national partners and policy-makers in seven pilot countries, raising awareness of the need to develop agricultural policy that supports pollinators, meeting with farming communities to help them develop pollination management plans, and introducing pollination into agricultural curricula.

Through farmer field schools launched by the project, farmers can share their traditional pollination solutions, blend them with the science-based practices, and observe the results throughout the growing season. FAO is documenting the successful pollinator-friendly practices, and compiling a set of tools and best management practices that can be applied to pollinator conservation efforts worldwide. The solutions are rather obvious – modify intensive systems, reduce pesticides and introduce diversity through cover crops, crop rotations and hedgerows. The goal is to find ways to support pollinators without reducing yields.

Adding science to tradition

Apple growers in India traditionally hung flower bouquets in their apple trees to simplify the cross pollination essential for apples to produce fruit. But FAO and its national partners discovered that by careful placement, the bouquets also enticed small black flies – not just bees – to pollinate their trees if the trees flowered when it was too cold for bees. Until then, the farmers had considered the flies to be pests and sprayed to control them.

Farmers in Ghana now plant cassava rows around their chili pepper fields to increase pollination. Bees do not like chili peppers, but FAO found that bees will come to the fields for the nectar-rich cassava flowers and while there, will also pollinate the chilies.

Brazil's regulation that farmers must keep a portion of their farmland in its natural forested state in order to slow tropical deforestation takes land out of production. But FAO and its national partners have shown farmers that the forest provides habitat to pollinators that, in turn, increase the production of crops, such as canola. The increase in productivity has been so impressive that private sector processors of canola seeds are now working with the FAO project personnel to train their technicians and canola farmers in pollination.

The FAO Global Pollination Project is sharing its findings across countries and regions, allowing more and more farmers and countries access to the knowledge about importance of pollination – knowledge that will eventually inform the policy to ensure that pollinators are protected and can continue to do their job – supporting the world's agricultural crops.



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