

Fighting Fruit Flies: Bangladesh uses Common Materials against a Common Pest



Internal symptoms of fruit fly damage.



Mango bagging in Bangladesh.



Mangoes grown using bags.

Bangladesh produces one million tons of mango every year, and it's no surprise why. The bold shades of red, orange, and yellow that mark a mango's flesh are only in-part indicative of the experience of biting into one—its fruit is tender, sweet, and sun-like. Mango is also rich in vitamins, making it the second most important fruit to Bangladesh, and its demand increases every year.

Nevertheless, due to Bangladesh's tropical and sub-tropical climate, the mango fruit fly plays a major role in diminishing the fruit's yield and harvest quality.

Fruit flies threaten up to 70 percent of mango yields in Bangladesh, and historically, farmers have turned to pesticides to manage the pest, sometimes using up to 62 applications in a season. Pesticide use poses a risk to human life, in addition to eliminating important pollinators, parasitoids, and predators, and oftentimes resulting in excessive residues on marketable fruits.

The Bangladesh Agricultural Research Institute (BARI), an IPM Innovation Lab collaborator, has developed a fruit bagging technology whose impact on mangoes in the South Asian country have been paramount. By wrapping mangoes in a double layer of brown paper, nearly 100 percent of mango fruit fly damage has been prevented.

“Farmers are saying that mango bagging is a good technique for them,” said Yousuf Mian, a coordinator with BARI. “Because it is a pollution-free method of pest control, they can sell the mango at a higher price and bagging improves the keeping quality of the mango.”

Bagged mangoes can be sold at a price almost



(Left) Yousuf Mian, BARI collaborators, and Bangladeshi farmers with IPM IL Associate Director Amer Fayad (third from left) in Bangladesh.



A farmer field day for mango bagging in Bangladesh.

double that of non-bagged mangoes and the bags can be reused for two seasons.

Shahadath Hossain, principal scientific officer in entomology at BARI, said that in Bangladesh, the areas of Rajshahi and Chapai Nawabgonj are producing mangoes commercially and exporting to areas such as the Middle East and Japan, increasing demand for better fruit.

While bagging requires labor, inversely it is “creating employment opportunities,” Hossain said. “Laborers are getting handsome money from it.”

With only one pesticide spray required before bagging, chemical residues on the fruit have been reduced to nearly zero, in addition to protecting mangoes from mechanical injury. Testing for pesticide residues can be expensive, and eliminating that step increases Bangladesh’s potential for entering more global markets with ease, not to mention the unblemished, flawless fruit that will help them get there as well.

“Farmers can very easily adopt this technique,” Mian said. “If you show this technique to the farmers just one time, they can do it. Since bagged mangoes are sold at a higher price in the market, farmers are using this money for purchasing good clothes, hiring new land, paying school fees for their children, and so on.”

Currently, there are two companies selling the bags to Bangladeshi communities. Last year alone, almost 40 million bags were used.