

ICAR-NBAIR, Bengaluru Scientists develop affordable fruit fly trap: seek global patents

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For years, farmers across India have struggled to protect mango, guava, sapota, and other citrus crops from the attack of fruit flies. Now, after three years of research and trials, scientists at the National Bureau of Agricultural Insect Resources (NBAIR), Bengaluru, (under the Indian Council of Agricultural Research) have developed a device - 'Shatpada Fruit Fly Trap' - that reportedly provides long-lasting pest control at nearly one-fourth the cost of existing products.

The device has completed successful multi-location trials and is now seeking patent in the U.S., Europe, Japan, China and Australia.

According to scientists, the device is a "controlled release pheromone dev-

Fruit fly trap at a glance

- Developed by ICAR - National Bureau of Agricultural Insect Resources (NBAIR), Bengaluru
- Controlled-release pheromone device
- Attracts and traps fruit flies in mango, guava, sapota & citrus crops
- Made in India, cost only a quarter of marketed alternatives
- Patent applications filed in the U.S., Europe, Japan, China & Australia
- Tested for three years across 11 Indian States

ice" which slowly releases insect pheromones (chemical signals) into the air over a long time. It works by giving out a smell that fruit flies can't resist, and once they enter, they get stuck and can't escape.

The project, led by Dr. S.N. Sushil, director of

NBAIR, and carried by Dr. K.J. David, entomologist, scientist at NBAIR, and Dr. Deepa Bhagat, principal scientist in Organic Chemistry at NBAIR, has been developed at the institute's PheraSense Nanotechnology and Chemical Synthesis Laboratory in Bengaluru.

What sets it apart

"The trap relies on natural chemical signals or pheromones, that fruit flies use to communicate. Scientists, for a long time, have used synthetic pheromones to attract and capture insects, but earlier devices such as glass vials, cotton wicks, rubber septa or wooden blocks had flaws. They either evaporated too quickly, degraded in sunlight or rain, or absorbed the pheromones without releasing them effectively. Farmers had to replace it every 7-15 days, adding to costs while some

even needed refrigeration before use," Dr. David explained.

The Shatpada trap, through its controlled-release technology, tackles all these issues. Instead of liquid vials or porous wood, the pheromone is immobilised inside a specially made semi-solid matrix.

The design ensures that the chemical is released slowly and evenly over 45 to 90 days, rather than in a burst followed by rapid decline. The trap has a twin funnel-shaped design that guides flies inside and prevents their escape. This device, made from durable, recyclable plastic, is also weather resistant and can be used multiple times with new lures.

Trials across 11 States

Over three years, the trap, under the All India Coordinated Research Project on

Fruits (AICRP-Fruits), was tested in mango, sapota, and guava orchards across India's 11 major fruit belts, from Karnataka and Andhra Pradesh in the south to Bihar, Himachal Pradesh, and Uttarakhand in the north. In all the cases, farmers reported that the new device captured more flies than conventional traps, stayed effective for weeks longer and reduced the need for repeated pesticide sprays.

Dr. Bhagat highlighted that unlike earlier technologies, this semi-solid formulation is easy to transport, requires no refrigeration, and is simple to scale up. Several industries are in the process of acquiring this technology from ICAR-NBAIR. Once transferred, the product will be commercially available at a competitive price point to benefit farmers across India, she added.

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