



# ENTOMOLOGICAL SOCIETY OF PAKISTAN

# APRIL

# 2025

ONCE INFECTED WITH DANGUE, THE MOSQUITO WILL  
REMAIN INFECTED WITH THE VIRUS FOR ITS ENTIRE LIFE

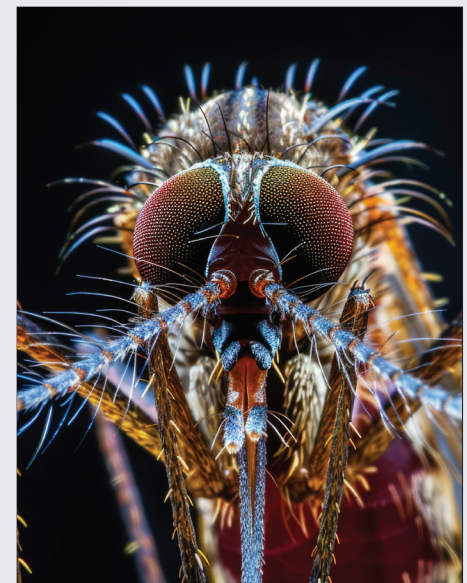
TO MAKE ENTOMOLOGY A KEY PART OF RESEARCH  
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Product Magazine

## ENTOMOLOGICAL SOCIETY OF PAKISTAN CABINET 2025

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# Pheromone Traps

Justify to FAO, about 20% of losses in stored grain are caused by pests, which include insects, rodents, and microorganisms. To avoid and protect your precious product from these pests, you must control them

## What are Pheromones?

Pheromones were first discovered by scientists in 1959 when they clipped & kept female insect genitalia into a cage and they observed male insects gathered outside the cage. From this experiment they understand certain chemicals are the means of communication in insects and named these chemicals as pheromones.

There are different types of pheromones, including sex pheromones, aggregation pheromones, alarm pheromones, and trail pheromones.

## why we use Pheromone traps to control pests?

The traps play very critical role in controlling and monitoring pests in storage and house hold places. The pheromone trap has 2 main components Lure and trap. The lure is a material used to attract the pests, it may be a pheromone, attractant or a food material to which insect is attracted.

The pheromone traps have attractant which attracts the insect toward it. When the insect lands on trap it gets caught due to sticky substances present in pheromone or one way moment mechanisms designed in the trap.

There are following type of lures and traps:  
Lures: rubber septa, PE Vials, PE Wafer lure, food attractant in capsule, wicks, wood/paper chips,



## STORED PRODUCTS PROTECTION PHEROMONES TRAPS

PEST INSPECTION & MONITORING MANAGEMENT

**TORIOS MULTI** | ٹوريس ملٹی  
MADE IN JAPAN

FOR MULTIPLE STORED PRODUCT INSECT PESTS INSPECTION



### TARGET INSECTS

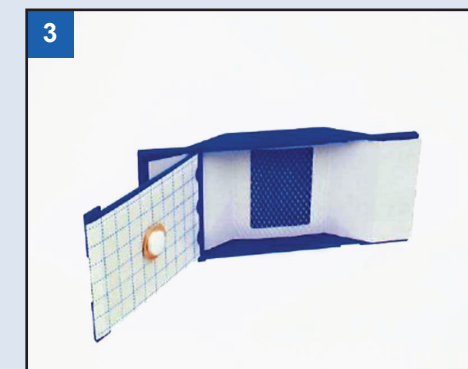
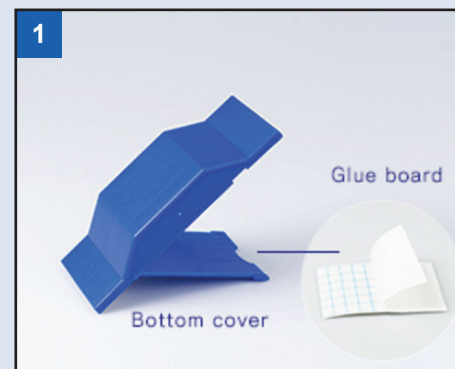
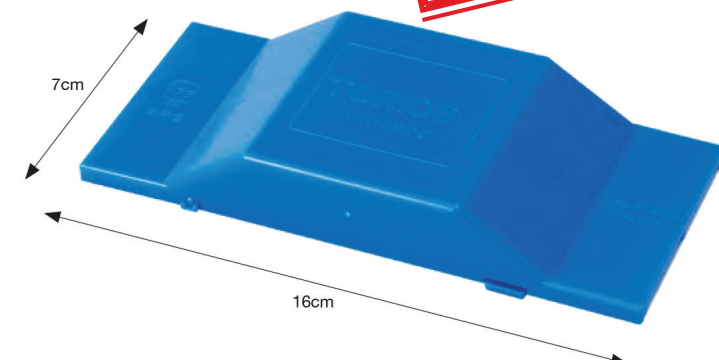


- Red flour beetle
- Saw-toothed grain beetle
- Flat grain beetle
- Maize weevil
- Confused flour beetle
- Lesser grain borer
- Khapra beetle
- Rice weevil

BEST PHEROMONE TRAP FOR  
STORED RICE PEST INSPECTION

### FEATURES of TORIOS MULTI

- The device is reusable which supports cost-efficient and environment friendly pest management
- By changing the lures only, this device can be used to monitor seven species of crawling insects
- The device is used for "habitat survey" and "monitoring" seven species of crawling insects with 1 lure
- Effective in finding out existence of seven types of crawling insects in a particular area





## There are following different types of pheromone traps:

Dome™ Trap, PC Floor™ Trap, Diamond Trap, Funnel Bucket Trap, Delta Trap, Wing Trap, Xlure MST™ Covered Pitfall Trap, New Tribo™ Glue Board Pitfall Trap, Wall Trap, Low Profile Glue Trap, Storgard Grain Probe, Pantry Patrol™ Pitfall Trap

## Important tips to consider while placing the traps in storage and home places for better monitoring of pest infestation:

- Keep in mind while placing trap in storage places,
- what is your targeted pest?
- Is it flying insect or crawling insect?
- How much range the pheromone can attract?

## Monitoring and record keeping

The traps facilitate easy monitoring and record-keeping. By observing the number of insect pests on specific traps, you can identify pest entry points



### Advancement in traps and trap monitoring with smart sensing technologies

### Safety precautions while using traps to monitor and control Household and large storage areas pest:

As technology continues to advance, insect pest control and monitoring are also evolving with innovations such as cameras, sensors, and drones.

However, it is essential to follow safety and regulatory precautions. Never install insect traps in areas where children or non-target animals may come into contact with them.

## Bed Bug Control A Complete Guide for Homes & Workplaces



### What are Bed Bugs?

Bed bugs are common insect pests found in every second home. They also infest hotels, schools, cars, and public transport. Hiding in clothes and luggage, they spread easily while traveling. These tiny pests are hard to detect, feed on blood, and cause itching and skin marks. Blood spots on bed sheets are a common sign of their presence.

### How to identify bedbugs

Bed bugs have a flat, oval-shaped body with a short, broad head and a dark brown color, resembling apple seeds.

Bed bugs cannot fly or run but can crawl quickly. A female lays 2–4 eggs daily, with a total of around 200 eggs in her lifetime. The eggs hatch into nymphs within 6 to 17 days, depending on temperature conditions.

Easy ways to eradicate bed bugs from your home and work places:

Bed bugs can be eliminated using home remedies like traps, steam cleaning, and insecticides. While effective, these methods carry risks, so it's advisable to consult experts such as professional pest control companies. In my opinion, we don't need to mention it here!



Integrated pest management (IPM) strategy to control bed bugs:



An IPM strategy for controlling bed bugs involves a combination of preventive, monitoring, and control methods to minimize reliance on chemical treatments. The first step is inspection and monitoring, which includes identifying infestation hotspots such as beds,

furniture, cracks, and electrical outlets. Bed bug traps and sticky monitors help track their movement, and regular checks of mattress seams, luggage, and upholstery aid in early detection. Prevention and exclusion methods involve encasing mattresses and box springs with bed bug-proof covers, sealing cracks and crevices, reducing clutter, and washing bedding, clothing, and curtains at high temperatures (above 50°C) to eliminate bed bugs. Mechanical and physical control includes frequent vacuuming of infested areas, steam treatments above 50°C to kill bed bugs and eggs, and the responsible disposal of heavily infested items. If necessary, chemical control can be used, applying approved insecticides such as pyrethroids, neonicotinoids, and insect growth regulators (IGRs) with professional guidance. Additionally, dust formulations like diatomaceous earth or silica gel can be applied in cracks and voids, and rotating insecticide classes helps prevent resistance. If the infestation persists, professional pest control services should be consulted for heat treatments or targeted pesticide applications. They suck blood and results in itches and marks on the body.



# SITUATIONAL ANALYSIS OF BEEKEEPING IN PAKISTAN



Beekeeping in Pakistan has emerged as a significant agricultural activity, with a substantial number of practitioners contributing to the country's apicultural landscape. As of current records, there are over 10,000 dedicated beekeepers actively engaged in apiculture, and an additional 20,000 allied stakeholders play a crucial role in supporting and enhancing the industry. The collective efforts of these individuals contribute to an impressive annual honey production of approximately 13,500 tons.

Pakistan boasts several prominent honey-producing regions, with notable hubs located in Punjab, Khyber Pakhtunkhwa, Gilgit-Baltistan, and Azad Jammu & Kashmir. Among

these regions, Punjab emerges as a primary contributor to the country's honey production, owing to the presence of renowned honey-growing areas such as Rawalpindi, Attock, Jhelum, Chakwal, Sargodha, Mianwali, and Layyah. However, there are also many popular areas for honey production in Khyber Pakhtunkhwa like Karak, Kohat, Bunnu and Nizam-pur. The honey produced in Pakistan encompasses a diverse range of distinct varieties, reflecting the country's rich natural resources and ecological diversity. These varieties include Sidr, Bhaiker, Carrissa, Russian olive, Robinia, Acacia, eucalyptus, Loquat, Berseem, Brassica, Shain, Shan shobe, and Thyme.

One particularly noteworthy aspect of Pakistan's beekeeping industry is the export potential associated with Beri honey. Renowned for its unique flavour profile, captivating aroma, and remarkable medicinal properties, Beri honey emerges as a flagship product with significant export value. Its distinctiveness not only highlights Pakistan's natural biodiversity but also positions the country as a notable player in the global honey market. The production and export of Beri honey serve as a testament to Pakistan's capacity to deliver high-quality,

sought-after honey products to international markets. This not only augments the country's economic prospects but also reinforces its reputation as a reliable source of premium honey offerings on the global stage.

The honey value chain in Pakistan is strategically dispersed across five key locations, namely Peshawar, Islamabad, Rawalpindi, Lahore, and Karachi. Peshawar stands out as the central trading hub within this network. It serves as the primary nexus for major exporters and processors operating within the honey industry. In Peshawar alone, there exists a robust network of over 1300 traders actively engaged in facilitating transactions within the honey value chain. Furthermore, additional support is extended by more than 500 traders dispersed across various regions of Khyber Pakhtunkhwa (KP) and Punjab. These traders play a pivotal role in bridging the gap between local producers and international buyers by ensuring a steady supply of honey and related value-added products.

## AREAS OF OPPORTUNITY

1. Upgradation of honey processing, quality processing, storage and marketing through providing SS and food-grade honey processing equipment/tools e.g. extractors, cleansing/-filtering machines, honey extraction kits, refractometer, food-grade cans etc.
2. Introduction and implementation of best practices related to production and processing through a series of capacity building sessions and B2B sessions to strengthen the sector capacity and to improve the connectivity.
3. Access to market efforts (national and international) to improve market visibility, product placement, B2B and B2C engagements

4. Quality and food safety certifications at processing stage.
5. Induction of ICT technology for marketing and management e.g. website, SEOs and digital marketing

## CONSTRAINTS

1. Lack of modern processing equipment, tools, machinery and testing equipment across the value chain especially at producer/processor side damage the quality, purity and physical characteristics of honey at very initial stage
2. Poor product standardization, packaging and access to market efforts.
3. Lack of food safety, organic and quality assurance standards restricting our exports to low-end trader's markets where most of the honey sold at wholesale price.
4. Lack of strategic marketing of this high-value sector carrying tremendous economic potential and employment opportunities.
6. Lack of formal exports to international markets.

A significant portion of beekeepers in Pakistan are primarily trained in honey production and hive multiplication, particularly during the spring season. However, a relatively smaller segment of beekeepers engages in the production of royal jelly, beeswax, bee pollen, and propolis. Despite efforts, previous reports indicate that approximately 30 % of harvested honey suffers from compromised quality, highlighting challenges within the harvesting process. Moreover, beekeepers encounter difficulties in managing mites and diseases,



often due to a lack of comprehensive knowledge and implementation skills in disease control and prevention strategies. While researchers and government institutes endeavor to offer technical support to beekeepers, honey traders, and exporters, there remains a substantial gap in enhancing their knowledge, skills, and capacity-building capabilities.

To tap into high-end global markets, there exists an urgent need to adopt and adhere to best practices in beekeeping, along with implementing stringent quality assurance measures throughout the honey value chain. This includes establishing robust systems for traceability and monitoring to ensure product quality and safety standards are consistently met.

Addressing these challenges demands a collective effort at the

national level, involving collaboration among stakeholders from government agencies, research institutions, beekeeping associations, and the private sector. By prioritizing capacity-building initiatives, promoting knowledge exchange, and implementing comprehensive quality control measures, Pakistan can strengthen its position in the global honey market and unlock opportunities for sustainable growth and market access.



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# The Tapestry of Life

In an era where the impacts of human activity on our environment are increasingly evident, the term "biodiversity" takes center stage in conversations about the planet's health. Biodiversity, which includes the vast range of life forms from microscopic organisms to towering trees and ocean giants, is the complex network of life that maintains balance in Earth's ecosystems. But beyond mere numbers, each organism—plant, animal, and microbe—contributes to a resilient and sustainable environment. This article explores the richness of biodiversity, its essential roles, and the urgent efforts needed to protect it.



## The Levels of Biodiversity: Genes, Species, and Ecosystems

### Biodiversity operates on three distinct levels:

1. **Genetic Diversity:** The genetic variation within species enables adaptability and resilience in the face of changing conditions. For example, wild strains of crops like rice and potatoes carry unique traits that can boost resistance to drought and disease in their cultivated relatives.
2. **Species Diversity:** This level looks at the variety of species within an ecosystem, each fulfilling a unique ecological role. Bees, for instance, are critical pollinators for food crops, directly influencing food security and agricultural economies.
3. **Ecosystem Diversity:** This includes the vast array of ecosystems, from rainforests to coral reefs, each offering invaluable services. Coral reefs, often called the "rainforests of the sea," shelter countless marine species, protect shorelines, and even support local economies through ecotourism.

### Why Biodiversity Matters

The importance of biodiversity is deeply woven into our daily lives, though it may go unnoticed. Here's how biodiversity plays a vital role:

- **Ecosystem Services:** Bio diverse ecosystems support crucial services like pollination, water filtration, and climate regulation. Forests, for example, absorb vast amounts of carbon, helping mitigate climate change impacts.
- **Food Security:** A rich variety of plant and animal species ensures genetic resilience in crops and livestock, which is essential for adapting to diseases or climatic challenges.
- **Medicinal Resources:** Nature is an invaluable pharmacy. Many modern drugs originate from plants and animals, such as the Pacific yew tree, the source of the cancer-fighting drug Taxol.

• **Economic Contributions:** Biodiversity supports multiple industries, from agriculture and fishing to ecotourism. Safeguarding biodiversity translates into safeguarding the economies reliant on these sectors.



# The Pressing Threats to Biodiversity



Despite its importance, biodiversity faces a range of threats driven largely by human activities:

- **Habitat Loss and Fragmentation:** Urban expansion, deforestation, and intensive agriculture are fragmenting and destroying habitats. The Amazon rainforest, a hub of biodiversity, is particularly impacted by land clearing for agriculture.
- **Overexploitation:** Unsustainable practices, like overfishing, deplete species populations and disrupt ecological balance. The decline in fish stocks is a pressing example.
- **Pollution:** From pesticides contaminating soil to plastic waste polluting oceans, pollution has far-reaching impacts on biodiversity.
- **Climate Change:** Rising temperatures, ocean acidification, and extreme weather events shift habitats, endangering species like coral that depend on stable environments.
- **Invasive Species:** Non-native

species introduced to new ecosystems can disrupt local flora and fauna, often leading to biodiversity loss. The Nile perch's introduction to Lake Victoria, for instance, led to the decline of native fish species.

### Conserving Biodiversity: A Global Imperative

In response to the mounting threats, a variety of conservation strategies are underway:

- **Protected Areas:** National parks and marine reserves are instrumental in preserving critical habitats. For instance, the Great Barrier Reef Marine Park helps safeguard a globally significant coral ecosystem.
- **Sustainable Practices:** Adopting eco-friendly approaches in agriculture and fishing can mitigate biodiversity loss, ensuring resources for future generations.
- **International Cooperation:** Treaties like CITES regulate international trade in endangered species,

while collaborative efforts in climate change mitigation address issues crossing national boundaries.

- **Public Awareness:** Education and awareness are powerful tools in encouraging biodiversity conservation. Organizations like the WWF offer programs to highlight the critical nature of biodiversity.

### Conclusion: A Call to Action

Biodiversity is the cornerstone of life on Earth, forming a robust yet delicate web that supports everything from ecological processes to human well-being. By recognizing its value, addressing threats, and fostering a collective commitment to conservation, we can work towards a sustainable future. Biodiversity is a legacy we owe not just to ourselves but to future generations—a vibrant tapestry of life that deserves our utmost protection and respect.





## PHOSTOXIN® BAGS

### PHOSTOXIN BAGS fumigant

ProFume fumigant has established itself over the past 12 years as the proven, go-to fumigant for postharvest pest management. Based on sulfuryl fluoride, ProFume controls all life stages of insects and rodents. Importantly, ProFume is effective without concern about damaging commodities, facilities or sensitive equipment. Exclusive Fumiguide® software provides flexible fumigation options and allows monitoring to ensure and document effectiveness. ProFume's active ingredient has a CODEX listing, aiding export commodity use, and is labeled for use in more than a dozen countries. Put simply, ProFume gives you the confidence that you are able to protect your commodity investment and company reputation.

### PHOSTOXIN bags is proven for use with:

- Grain storage facilities
- Agricultural seeds
- Milling
- Food processing
- Cocoa beans and other specialty commodities

### The advantages of PHOSTOXIN bags

- Labeled for a broad spectrum of target pests
- Controls all life stages of insects and rodents
- One of the most extensively researched fumigants
- Has no known pest resistance
- Noncorrosive
- Nonflammable
- Does not damage sensitive electronics



## WEEVIL-CIDE GAS BAGS NEW PACKAGING DESIGN AND FORMULATION

WEEVIL-CIDE gas bags are UPL's newest high-value fumigation products for processed commodities such as cereal grains, rice, popcorn, dried vegetables and more.

The newly designed formulation for gas bags including strips and blankets contains aluminum phosphide granules that provide a more stable release of phosphine gas. Phosphine gas is an effective method for controlling many species of insects and pests that can infest stored commodity products, including but not limited to grain beetles, fruit flies, mealworms, mice, rats and rice weevil.\*

WEEVIL-CIDE gas bags are part of a fumigation process where they are suspended in the container and have no direct contact with any commodity. Since there is no residue associated with use of fumigation gas bags, they are a tailor-made solution for fumigation of stored commodity products that are further packaged or processed.

### UPL'S FUMIGATION PORTFOLIO IS MORE ROBUST THAN EVER

UPL currently offers one of the largest, most diversified fumigation portfolios. From top-quality products to innovative application equipment technology, UPL continues to prove its worth as one of the most valued and trusted partners in the industry. UPL is the largest manufacturer of phosphine fumigants in the world. Aluminum phosphide is one of the oldest products in UPL's global product portfolio.



\*See product labeling for a complete list of pests controlled.



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