TELEMO® Smart Fruit Fly Monitoring Equipment Manual

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Dear Users,

Thanks for choosing TELEMO® smart system for fruit fly monitoring. Though we believe most of our users are smart enough to figure out how to use it without reading the manual as the product is self-explanatory, we do recommend that you keep it for future reference. If you misplaced the manual but need it later, you can always access it via the following link:

https://en.ecomanbiotech.com/download

You can also contact our customer support via:

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Once properly configured, the TELEMO® smart system can send real-time fruit fly population dynamics data from the field to your mobile phone or computer remotely at your comfort from workplace or home.

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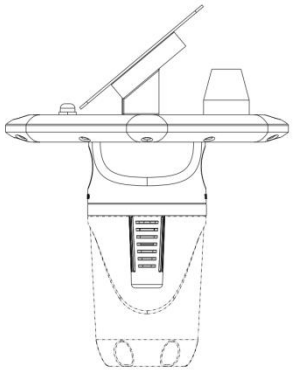
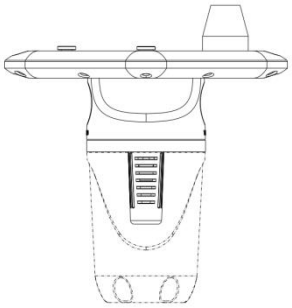
I. Product Introduction

Fruit flies are invasive pests that are widely distributed all over the world. Every year, billions of dollars were attributed to fruit fly losses in the agricultural industry. They attack several agricultural crops of high commercial value in tropical and subtropical regions of the world. The key to effective fruit fly control is scientific and precise monitoring.

The TELEMO® smart fruit fly monitoring system represents a new generation of fruit fly monitoring products. Based on IoT technology, it can transmit fruit fly occurrence data in real-time 24*7 to the client's PC or Mobile device. It has the advantages of high efficiency, high accuracy, and timeliness over manual monitoring methods. In terms of the system operation, the patent pest trapping structure is based on fruit fly sex attractant monitoring technology, and the specific sensor is used to transmit information to the customer's computer terminal or mobile device using modern data transmission and communication technology. Pest-oriented lure monitoring, classified statistics, real-time transmission, remote monitoring, and pest early warning are all functions of the system.

The TELEMO® Smart Fruit fly monitoring system is used to monitor the dynamics of fruit fly populations using sex attractants in real time. It is lightweight, has a consistent performance, and is easy to use. It is a useful tool for monitoring the population dynamics of fruit flies.

II. Packing list

Type S (Solar panel)	Type A (AA alkaline batteries)
1. TELEMO® Smart Fruit fly monitoring equipment-Type S x1 2. User manual x1 3. Conformity certificate x1	1. TELEMO® Smart Fruit fly monitoring equipment-Type A x1 2. User manual x1 3. Conformity certificate x1
 **Overall Schematic Diagram for Type S**	 **Overall Schematic Diagram for Type A**

III. Product structure and composition

The TELEMO® Smart Fruit fly monitoring system consists of two parts: Smart Fruit fly collection equipment and Smart Fruit fly software platform.

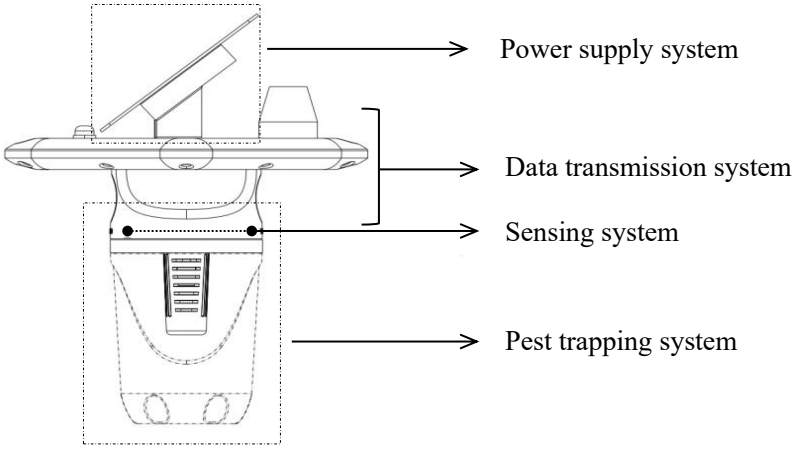
The fruit fly intelligent collection equipment comprises four components: pest trapping system, sensing system, data transmission system, and power supply system.

- ✓ The pest trapping system consists of a pest entry channel, lure basket, and pest collection bucket and is designed according to the biological characteristics of the fruit fly and is characterized by high trapping efficiency;
- ✓ The sensing system consists of specific sensor, with careful selection according to the biological characteristics of the fruit fly, and is characterized by sensitive counting and high accuracy;
- ✓ The data transmission system is composed of data processing mainboard and signals

receiving antenna, and a combination of modern data transmission and communication technologies, with data transmission, communication, and logic processing functions;

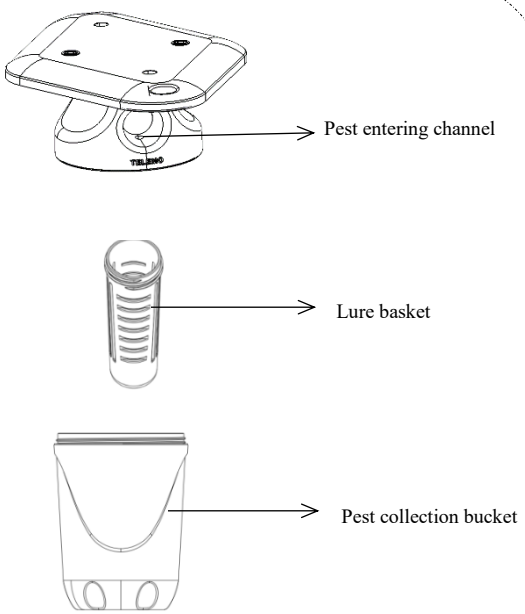
- ✓ The power supply system for Type S (solar panel) and Type A (Alkaline dry battery):
  - Type S power supply system comprises a solar panel, bracket, lithium battery, power switch, and multifunctional battery holder.
  - Type A power supply system comprises a multifunctional battery holder, dry battery (self-provided), and power switch.

The schematic diagram of the integral structure is as follows:

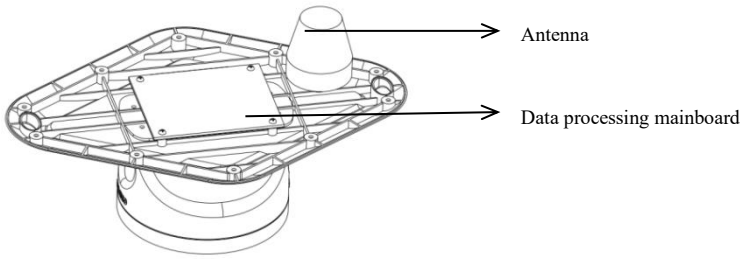


Overall Schematic Diagram for Type S

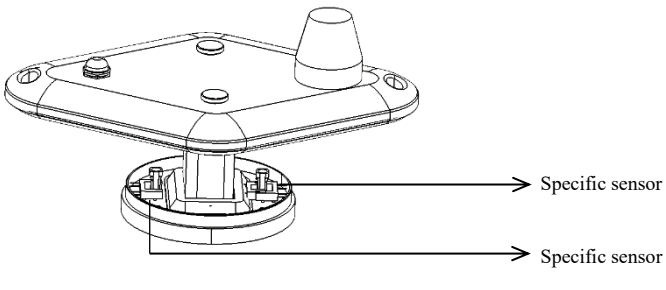
Structure of pest trapping system



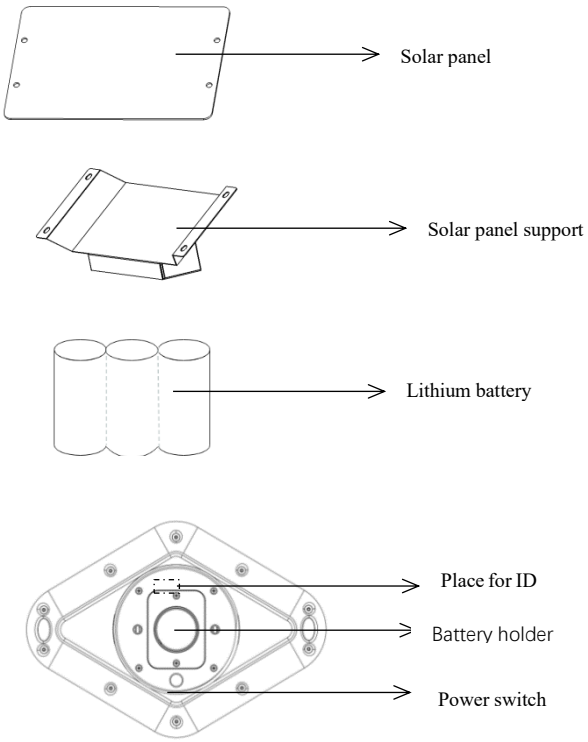
Information control and



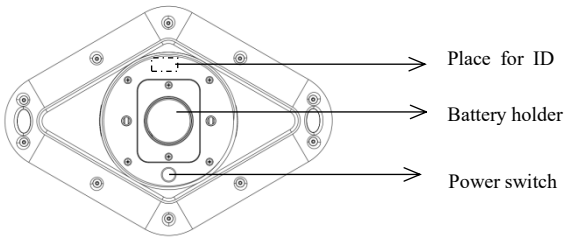
Structure of information



Structure of Type S power supply system



Structure of Type A power supply system



IV. Product features

(1) 24*7 remote monitoring, GIS information positioning, and real-time remote grasp of the occurrence dynamics of the fruit fly in the field.

(2) The patent pest trapping structure is designed based on the biological characteristics of the fruit fly, and the capture rate of the fruit fly is greater than 90% with conventional traps.

(3) The specificity sensor and the logical algorithm are used, and the counting accuracy of the target fruit fly is greater than 90%.

(4) The equipment is highly applicable and applies to more than nine species of fruit flies with sex attractant.

(5) It can monitor the number of fruit flies trapped, network signal, voltage, online status and other indicators, with data shown by the dynamic visual chart.

(6) The early warning information is prompt, the threshold value setting is flexible, and the accuracy is continuously improved based on big data analysis and mining.

(7) The region-wide monitoring and early warning system for fruit fly distribution can be established based on a Web data management system.

(8) The low-power design and two power supply modes meet various needs.

(9) The overall structure design is light, easy operation, and has a low maintenance cost.

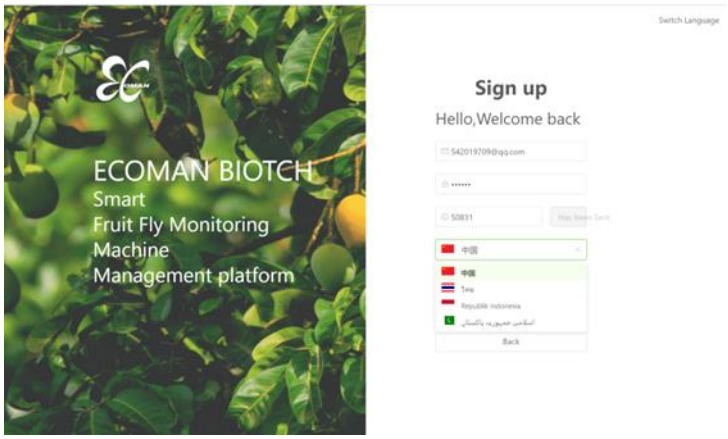
V. How to use

Users must log in to the platform, complete the following online procedures, and then install the machine in the field.

The process is as follows:

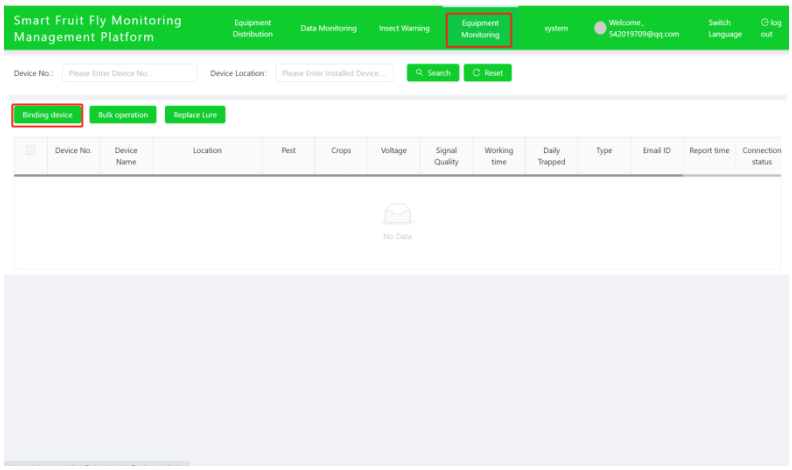
1. Registration

Visit http://syjctest.dpitmo.com/ and register an account with an Email ID, input the password, choose the country/region, and use the verification code in the e-mail to complete registration.



2. Binding equipment

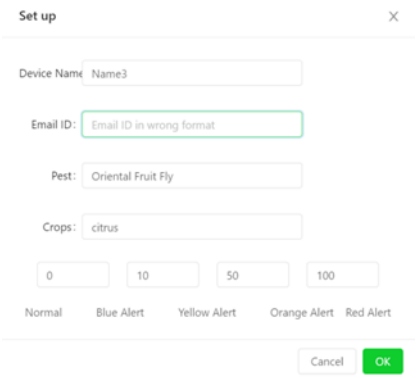
Click "bind the equipment" and enter the equipment code.



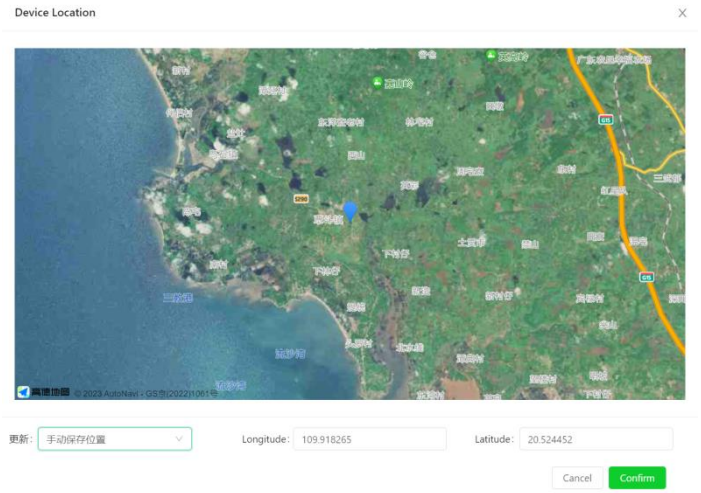
3.Platform setting

Set the information as per the following steps (single equipment setting or set of multiple equipment).

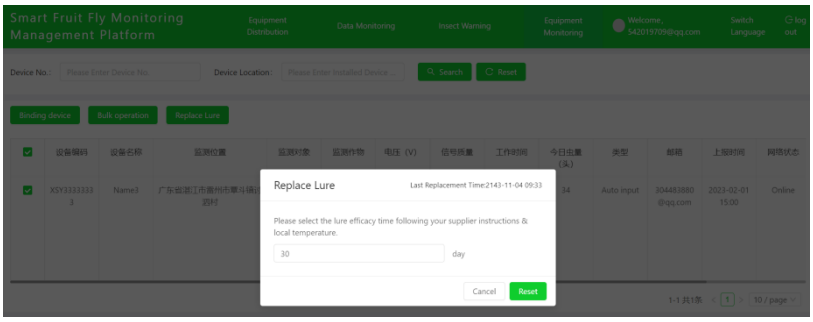
a) Set the name of the equipment, the email address for receiving early warning prompt messages, the target pest, crop, and the early warning threshold. When the single-day fruit fly monitoring data exceeds Blue Alert, the platform automatically sends a prompt email message.



b) It supports both automatic and manual location matching. The signal is affected by the automatic matching position, and there may be a delay in synchronising with the platform. Set the location manually when calibrating the position.

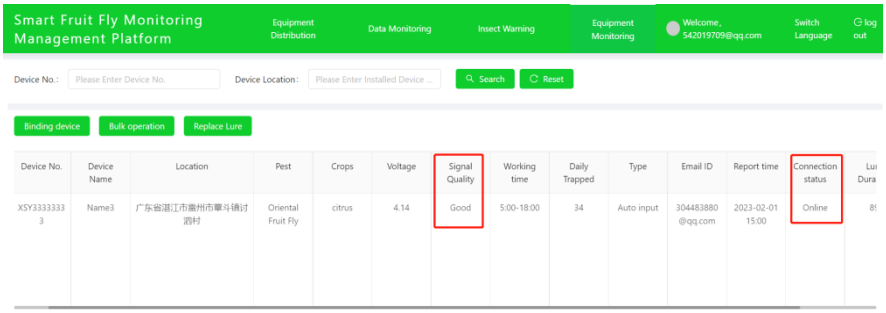


c) Define the duration of the lure. The platform will automatically send an email seven days in advance reminding you to replace the lure based on the duration of the lure.



4. Equipment commissioning

Confirm the signal and online status on the platform, and adjust the position until the signal quality is above medium and the connection status is the online status after startup.



5. Installation in the field

a) Place the target fruit fly lure in the lure basket (the user provides the sex lure).

b) Before purchasing the product, install the appropriate IoT SIM card (the IoT SIM card slot is in the multifunctional battery holder) and consult the local operator.

c) Place it in a well-ventilated area of the orchard where the network signal is strong.

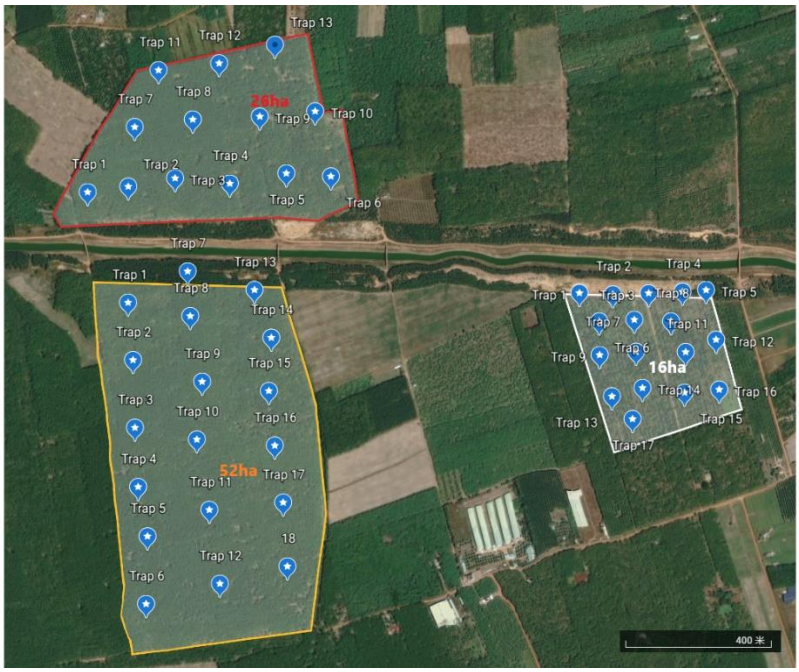
d) When used for low crops less than 1m in height, the installation height should be 20-30cm higher than the crop's top; when used for tall crops taller than 1m in height, the recommended installation height is 1-1.5m from the equipment's bottom edge.

e) A Type S machine can be installed in a sunny location, with the solar panel facing the sun to improve charging efficiency.

f) Insert 6 AA batteries (provided by the user) into the battery holder and close the lid.

g) To monitor fruit flies, press the power switch.

h) For installation point selection, refer to the picture below:



A contiguous plot with a consistent crop growth period and occurrence of fruit flies can be used as

a single monitoring unit. The installation density is high at the monitoring unit's edge and in areas with a lot of grass and water channels; the installation is done on the basis of the principle of the equipment installation density being high in areas with serious fruit flies and low in areas with minor fruit flies.

Install one piece of equipment per hectare if the same monitoring unit is less than 20 hectares in size.

Install one piece of equipment every 2 hectares if the same monitoring unit is less than 20-50 hectares in size.

Install one piece of equipment every three hectares if the same monitoring unit spans more than 50 hectares.

We advocate for the creation of a regional fruit fly monitoring system. We recommend contacting our professionals to develop a plan for the distribution of the TELEMO® Smart Fruit fly monitoring system based on local conditions due to the influence of plot distribution, plot size, fruit fly density, surrounding environment, and other factors.

VI. Technical Indicators

Parameters	Type S	Type A
Product size	310cm*217mm*396mm	310cm*217mm*326mm
Package size	405mm*320mmx500mm	405mm*320mmx500mm
Gross weight	1.8kg	1.4kg
Network	4G cat.1	4G cat.1
Voltage	18650 lithium battery 3.7v, 10200mAh	Dry battery 1.5v AA*6
Working voltage	3.4V-4.2v	4.2V-5V
Solar panel	6V 5W Operating current: 830mA	None
IoT SIM card	Nano	Nano
Protection grade	IP45	IP45
Operating temperature	0-45℃	0-45℃
Applicable scenario	Outdoor	Outdoor
Counting mode	Infrared	Infrared
Smart system	Yes	Yes
Data interface	TTL	TTL

VII. Operational Safety

1. If the battery sustains damage or leaks liquid, it must be stopped immediately.
2. When disposing of a battery as waste, follow the local battery disposal method rather than randomly discarding it.
3. Unauthorized demolition will have an impact on the warranty commitment.
4. Keep children away from the equipment and battery accessories.

VIII. Troubleshooting

If the equipment does not upload data to the platform for 48 hours after installation, a fault alert will be sent to the Reminder Mailbox.

The following are some possible reasons for troubleshooting:

Symptom	Cause	Solution
Power failure	Low battery voltage or poor contact.	• Check on the platform that the voltage value is less than the working voltage. • Move the equipment to a location with direct solar radiation to improve charging efficiency and see if the recovery occurs. • Replace the battery to see if the equipment recovers.
The communication between the equipment and the platform is interrupted/lost.	Examine the platform's power supply. The equipment requires 3.4V for Type S and 4.2V for Type A.	• Replace the power supply with a new one or ensure appropriate power supply to the device.
	The network strength of the IoT SIM card may be weak in the installation location. Check the platform for network quality.	• Replace the equipment's installation location and find a location with a strong network signal for installation.
	The data bandwidth on the IoT SIM card is insufficient.	• Ensure data availability for the connection with the service provider.
	Unsupported network.	• Use a local IoT SIM card with at least 5MB of data available per month.
The equipment fails to trap any	The lure has expired.	• Replace with a new lure.
	There is no fruit fly in the	• Change the location and

fruit fly for one entire week, or the platform fails to upload any fruit fly monitoring data.	installation area.	select another area with fruit fly infestation.
	The lure is not effective.	• Use a proper fruit fly lure as a replacement.

IX. Routine maintenance

a) The ID number for each machine is configured when the products leave the factory. Keep your ID number and platform account information safe.

b) When the number of fruit flies in the pest collection bucket exceeds 2000 during peak season, the pest collection bottle must be cleaned to prevent the pest inlet from becoming clogged.

c) Once a quarter, perform a thorough inspection and cleaning (including the solar panel connecting line and the battery connecting line). Check that the pest inlet is clear, and clean the lure basket and fruit fly collection bucket with a wet tissue.

d) If the solar panel connecting line and battery connecting line appear to be ageing after two years of warranty, replace the lines promptly.

e) Ensure that the system is turned off during the non-use period. Take back the equipment from the field for cleaning and maintenance for its use in the next season.

5. After the expiration date, replace the new lure. Wear gloves and a mask when replacing lures.

6. Before replacing different types of lures, the lure basket must be cleaned.

X. Equipment transportation and storage

a. It is necessary to prevent violent squeezing and crashes during transportation and storage.

b. Avoid contact with corrosive substances.

c. Keep it away from flammable and explosive materials.

XI. After-sales service

1. Please contact the local after-sales service hotline. Provide the equipment ID and describe the issues.

2. The following situations are not covered by the warranty:

(a) Consumer damage caused by improper use, improper maintenance, and poor preservation.

(b) Unauthorized disassembly.

(c) Damage caused by force majeure events such as natural disasters.

(d) The lithium battery and lure basket are consumable items that are not warranted.

XII. Scope of Application

The TELEMO® Smart Fruit fly monitoring system can be used to monitor the population dynamics of fruit flies using specific lures. Please contact the Ecoman Biotech Team, if you want to buy Methyl eugenol lure and Cuelure.

The following are the applicable lure and target fruit fly species:

Lure	**Target fruit fly**
Methyl eugenol lure	Oriental fruit fly *Bactrocera dorsalis* (Hendel) Peach fruit fly *Bactrocera zonata* (Saunders) Guava fruit fly *Bactrocera correcta* (Bezzi)
Cuelure	Melon fly *Bactrocera cucurbitae* (Coquillett) *Zeugodacus tau* (Walker) Queensland fruit fly *Bactrocera tryoni* (Froggatt)
TriMed Lure	Med fly *Ceratitis capitata* Mango fruit fly *Ceratitis cosyra*, Natal fruit fly *Ceratitis rosa*