

# In2Care Mosquito Trap Service Procedure

The In2Care Mosquito Auto-Dissemination Trap is an outdoor contamination Station against container-breeding and day-biting *Aedes* mosquitoes, with the goal to reduce the mosquito population to a level that greatly reduces nuisance and the spread of diseases such as Zika virus. The product is EPA-registered, deploys safe bioactives, and has scientifically validated results. The desired end point that should be communicated to the customer is much reduced numbers of *Aedes* mosquitoes, therefore resulting in a much reduced risk of biting and disease transmission. The product needs professional deployment and monthly maintenance, and will not give total elimination of all species of mosquitoes.

## Proper deployment summary:

1. Assess which mosquito species are present
2. Map your target area & calculate Trap numbers
3. Determine placement location & secure In2Care Traps
4. Assemble & place In2Care Traps
5. Maintain the Traps monthly: reactivate with fresh refills
6. Monitor the Traps

## Step 1: Confirm mosquito species

It is advisable to first note client concerns and complaints regarding mosquito activity/bites. You will want to confirm that at least some of the mosquitoes are identified as *Aedes aegypti* or *Aedes albopictus*, or at a minimum confirm with the customer that there are day-biting mosquitoes present. This can be done by inspecting the site for adult *Aedes* mosquitoes or the presence of *Aedes* mosquito larvae in small (mostly clean) pockets of water.



*Aedes aegypti*



*Aedes albopictus*



*Aedes larvae*

If the location is near salt water or marshes, some of the daytime mosquito activity can be from the Salt Marsh mosquito. If that is the case, In2Care system will not work against them. If the biting activity is at night (likely from *Culex*, *Mansonia*, *Culiseta* or *Anopheles* mosquitoes), it will require a different treatment approach that may not include In2Care.

## Step 2: Map your target area

Map the area to be treated and locate (potential) mosquito breeding sites. For larger jobs it is suggested to create a site plan, which can be used to create a grid map of the area to determine Trap placement (see point 5) and monitor Trap maintenance. If the area is small such as a single home, you can simply note the placement location of each Trap set out for future maintenance.



It is important that there is access up to the perimeter of the property for placement/survey purposes. *Aedes* mosquitoes can easily fly 150 meters (490 ft.), so can enter the customer's property from neighbouring (untreated) sites. An add-on chemical barrier treatment will greatly help reduce this. In hotspot areas with many mosquitoes, we recommend breeding source removal when placing the In2Care Traps.

Site survey form

Collect the following information that will allow service staff to establish how many Traps to place on a site and which areas are high risk and should have the highest concentration of Traps. Key information:

- Customer type
- Site plan and area (m<sup>2</sup>)
- % split of vegetation, buildings, non-vegetation (car parks, etc.)
- No. of mosquito breeding sites: low, medium, high risk
- No. of mosquito bite/nuisance complaints (& moment during day)
- Risk of mosquito influx (from neighbouring areas): no risk, low, medium, high
- *Aedes* density indication & Presence of non-target biting mosquitoes

With this information, you should be able to work out if the site is suitable for In2Care deployment (and other add-on or alternate control methods if necessary) and which Trap density would be needed over the total site area. In2Care recommends deploying approximately 1 Trap every 400 square metres (10 Traps per acre) overall in areas with medium to high risk of *Aedes* mosquitoes. Calculate how many Traps will be needed based on the risk indication Table:

Identifiers	High risk area	Medium risk	Low risk
Customer complaints (biting during day)	Many	Few	None
Proportion of mosquitoes being <i>Aedes</i>	>75%	10-75%	<10%
Presence of vegetation/trees/shrubs	Many	Few	None
Presence of water sources	Many	Few	None
Presence of humans	Nearby (<50 m )	At distance	Far way (>100 m )
# active breeding sites/ area	Many	Few	None
Presence of non-removable breeding sites	Many	Few	None
Bordering area with many breeding sites	Nearby (<50 m )	At distance	Far way (>100 m )

### **Step 3: Trap Placement Location & Securing options**

In all cases, the Traps will need to be placed in shaded, secluded areas preferably away from kids and pets. As described above, create a detailed map/site plan or obtain one from the client. When possible, use a mapping tool/device to record & track placement. Routing software may also have this feature.

The ideal placement location is a site where *Aedes* mosquito breeding is observed. Make sure that In2Care Traps are placed on level surfaces at spots with continuous shade at all sun angles. In residential areas, this would be near the house; next to garden sinks, patios, sheltered dark/moist corners. In2Care advises to target the areas near the compounds, personnel quarters, terraces and shrubs near ponds. Note that mosquitoes do not necessarily breed where they bite and where clients complain from nuisance.

For larger-scale roll-outs in residential areas, it is advised to try and adhere to the recommended overall density of 10-11 Traps per acre, but to also make sure that Traps are only placed in spots that are suitable; not on roads, open grassland or other large open (non-shaded) areas.

If such locations are encountered, place relatively more Traps in the surrounding yards/vegetated sites where mosquito breeding was observed or can be expected. This means that large sections of low risk areas can be treated with very low Trap densities; only a few in shaded spots.

Note the proposed location of Traps prior to survey; it is suggested to get client agreement before documenting the actual locations sited. File this plan with the client to ensure both parties know where Traps are located and how many are on site. Use this form for servicing moments to keep track of Trap functioning and maintenance activities.

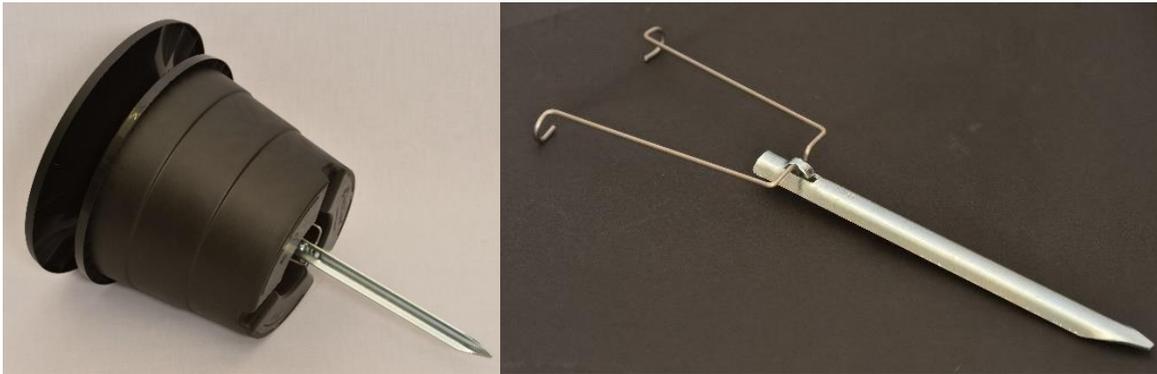
#### **Securing the Trap**

Full Traps (>1 gallon of water) are quite stable and heavy enough to not get knocked over easily. In2Care Traps need to stand firmly and horizontally at ground level, if they are on a wobbly/uneven underground this can cause issues with Trap placement and gauze getting wet. In most areas, placement on sturdy, level floors or soil should suffice. When possible, place Traps in secluded spots or corner areas to minimize chances of disturbance. In case of domestic animals being present, try to place Traps in spots that are not easily accessed by the animals as they may try to get to the water inside. Adding official company markings/stickers is recommended to minimize removal or theft.

In case of uneven soil, wind, animal, Trap disturbance and possible theft/removal of Traps, we advise the use of In2Care's additional fixation tools, which are shown in the below pictures and online video: <https://youtu.be/BcUzoliFLcl>. The optional In2Care wire insert is made to fit into special slots in the Trap. The other end can be staked to the ground, or nailed or screwed to a hard surface to secure the Trap. The Trap can then be easily separated from this securing device by squeezing the top of the wire to release the Trap. At that point, the Trap can be easily serviced. Alternatively, a long tie-wrap or lock can be added to the central tube of the Trap container and fixated to a tree, pole or similar structure.



This way, the Traps cannot be removed or get stolen. However, a new tie-wrap will be needed each time the Trap needs to be removed/reactivated.



#### **Step 4: Assemble & Place the Traps**

Trap assembly instructions are detailed in the User Manual, which can be downloaded from: <http://www.in2care.org/how-does-it-work>. For more visual assembly detail, please see In2Care's User Instruction video on: <http://www.in2care.org/products/videos>.

It is important to reiterate that the water should be placed in the Trap prior to putting the floater with the gauze in the Trap. Then put the top can be put on. This will keep water from 'sloshing' onto the gauze to maximize effectiveness by keeping it fully dry.

1. First decide where to place the Trap before proceeding with assembly.
2. Secure the Trap with fixation tools when needed.
3. Add approximately 5 Litres (>1.3 gallon) of clean tap water to the container by using a watering/jerry can or garden hose. This maximum water level is reached when water starts coming out at the bottom via the overflow openings (Note this does not indicate leakage).
4. Prepare the floater component. Shake the refill sachet before opening. Use gloves to place the powdered netting strip from the sachet onto the floater, as described in the User Manual. It is normal for some parts of the netting will be whiter than others. Pour remaining powder and 2 yeast tablets contained in the packing into the water. Picture of steps & refill/sachet contents below:





5. Place the floater with the powdered gauze strip carefully on top of the water and empty the sachet contents (leftover powder and odor tablets) in the water, see picture.  
*Be careful with handling the Trap after this point; the actives work best when kept dry.*
6. Next, attach the lid which can be secured with a twisting movement.
7. Finally, turn the green calendar indicator to either approximate date to show when the Trap was put in place or to show a future date to show when the sachet/refill will need to be replaced.

Use stickers to number the Traps and alert your client(s) not to disturb, damage, replace or remove them. Keep track of the final placement of each Trap on a map and/or via a mapping tool.



## 5. Maintenance: monthly reactivation with refills

In2Care Trap ingredients will lose their efficacy over time and need to be replaced regularly. It is recommended to service them every 4-6 weeks as explained in the User Manual using fresh refill sachets. These steps include:

1. Empty the Traps; remove the water & dispose of the gauze strip
2. Add 5L (approx. 1,3 gallon) of clean tap water as described previously
3. Add a new strip of gauze from a refill sachet on the floater & place this in the Trap
4. Again, empty the sachet content in the water & place the lid on top

When servicing, clean and remove any dead/organic matter from the Trap and add fresh water. Note that larval odors increase Trap attraction as they are perceived as safe or reliable egg laying sites by *Aedes* females. However, Traps should not be allowed to smell rancid with decaying material. Pyriproxyfen kills pupae before they become biting adults, increasing the attractiveness of the Trap without acting as a breeding site. Seeing many larvae in the Trap shows good placement. Remember, all the larvae observed in the Trap will die.

Refill sachets with these maintenance ingredients can be stored for more than a year in the refrigerator and 6+ months at room temperature at or below 72 F (20-22°C) without losing effectiveness. Refill sachets will last over 1.5 years if refrigerated. Do not keep refill sachets in a hot vehicle or open sun, but use a small cooler when deploying them in the field. Adhere to proper waste removal for old pieces of floater gauze and Trap contents. Trap components can be used for >3 years since they are made of durable UV-stable polyethylene.

Traps should also be 'topped off' with water in between the service cycle when needed. For optimal mosquito attraction and impact, the Traps need to have sufficient water levels (>5 cm/2 inches) at all times. Water can be added via the lid, by pouring it slowly on top of the lid opening. Note that it is important to keep the powdered gauze strip dry.

## 6. Monitoring

During the servicing checks, it is advised to monitor Trap functioning and mosquito presence using a printed or online form. It is recommended to record the following:

- Number of broken/damaged/leaking /replaced/stolen Traps → replace when needed
- Floater placement/position/floating capacity → fix when lopsided or sunk
- Quality of the powdered gauze strip (dry/partially wet/ wet) → change when wet
- Water level → top up when lower than 5 cm level
- Presence & quantity estimation of *Aedes* eggs, larvae and pupae
- Water quality (presence of dirt, other insects/animals etc.) → clean when very dirty

Note that the presence of live *Aedes* larvae inside the Trap is an indication of good functioning. The larvicide only kills the final pupal stage right before they transform into adults. If a Trap continues to show 0 mosquito breeding whilst other Traps nearby show many larvae, this could be an indication of poor placement. Switch the position of that particular Trap in that case. When many Traps are being damaged or lost, make sure to discuss this with the client and propose adequate actions.