

# Insect Light Traps – Welcome to the LED revolution

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## **What are Insect Light Traps?**

Insect Light Traps (ILTs) are fundamental for the management of flying insects in pest control. They are used in a variety of different environments including warehouses and food manufacturing facilities, and their purpose is twofold:

1. To attract insects away from food and food preparation surfaces. This protects the food from contamination of insect fragments and bodies but also a number of harmful pathogens that flying insects are known to vector.
2. To monitor pest infestations for increasing pest numbers and different species to highlight where better pest management needs to be implemented.

ILTs use long wave Ultra Violet light (UV-A) which flying insects find highly attractive. Traditionally, this is produced by fluorescent lamps but within the last six years there has been extensive ILT research and development to introduce LEDs as a UV-A light source.

ILTs using LEDs have started to become readily accessible but their implementation into different sites has had slow uptake, due to many having a preference for fluorescent lamps. This is for a variety of reasons such as fluorescent lamps producing more visible light, so they shine brighter to humans so seem more effective at attracting insects.

Yet, humans cannot use UV light and so the more an ILT shines out in the environment, it is actually all the wasted visible light and not the attractive UV light.

### **What are the benefits of LEDs?**

The use of LEDs as a light source has many benefits long term even if their initial cost currently may be more expensive, such benefits include:

1. **Significantly reduced running costs** – across the course of a year, by switching to LEDs a business is estimated to save around £81 per unit<sup>1</sup>. This could lead to substantial savings if a site contains tens of units.

  - **Improved sustainability** – LEDs don't use hazardous materials such as mercury which is essential in the chemical reaction for fluorescent lamps to produce UV light. Additionally, LEDs have a three-year life span, whereas a fluorescent lamp needs to be replaced annually to produce the required amount of light to attract insects. This leads to less waste being produced which then reduces the carbon footprint of a company and less hazardous materials such as mercury being used.
  - **Fly catch efficacy** – In both laboratory and field trials LEDs have been shown to be as effective as fluorescent lamps, in both the number of flying insects they catch but also the range of flying insects they catch. LEDs also allow for continual fly attraction over three years, whereas a fluorescent lamp rapidly degrades in the amount of light output and will not offer the same continual attraction.
  - **Legislation** – Across the UK and EU, general purpose fluorescent lamps will be restricted from use in September 2023, however, specialist UV fluorescent lamps will remain available through to February 2027. During this time there is an expectant increase in cost to continue using fluorescent lamp ILTs. For instance, as the lamps are being removed from general sale, manufacturers of the lamps will reduce production of other essential electrical parts of the unit. Therefore, it will become more costly and difficult to service the unit and there has already been a notable increase in the cost of the lamps over the past year. This is set to continue as many manufacturers decrease production if not discontinue the production completely.

### **What's on the market?**

There are numerous models of ILT's using LED technology now available on the market to suit different environments and purposes, however many also come with differences in their effectiveness to catch flying insects.

This primarily comes down the research into using LEDs as a light source. Whilst they are doing the same job as a fluorescent lamp, they have different qualities that need to be understood to successfully develop a well-designed ILT.

Some ILT models that are currently available have directly substituted a fluorescent for an LED lamp and this has impacted the ILT's fundamental ability to attract the insect to the unit and trap them on a glue

surface. Without containing the insect in the ILT, contamination of the environment and a continuation of the insects' life cycle is possible. Therefore, a well-designed ILT that has best employed LED technology through thorough research must be used for successful pest management strategy.

*<sup>1</sup>Based on Infiniti 2 (16 LEDs) which uses £47 per annum based and on a 44W fluorescent lamp which uses £128 per annum (0.28KWH average energy cost UK)*