

Installation and use of Chromatic Sticky Sheets

e-**GLEEK**®

Automatic Connected Trap

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1 INTRODUCTION

The e-GLEEK® trap is an automatic electronic system used to monitor the presence and the density of flies and insects in the fields. Highly universal, it offers a lot of possibilities (e.g. type of crops) and support for trap elements. However, to gather accurate information, there are rules that have to be followed so that correct information will be obtained from the sticky sheet where the insects have been glued.

This document aims at providing recommendations towards correct installation and use of the sticky sheets used to capture the insects.



Figure 1: Vue générale du piège e-GLEEK

The e-GLEEK® trap is used to regularly count insects and send SMS or email alarms when a

large arrival of specific flies has been detected. This automatic alert is based on the observation of a sticky chromatic sheet placed in front of a camera whose responsibility will be to shoot up to 5 images a day and verify the number of flies with regards to alarm thresholds.

2 THE MATERIAL

2.1 e-GLEEK® trap

There are two versions of the e-GLEEK® trap :

- Vertical position of the sticky chromatic sheet
- Adjustable position of the sticky chromatic sheet (from vertical to horizontal)

Whatever the option you have chosen, the position and set-up of the sheet will be identical.

2.2 Sticky sheets

The sticky sheets which will be used with the e-GLEEK® can be purchased at your usual provider. The dimensions of these sheets are indicated here after. The trap has been designed to use A4 format (210mm x 297mm) but it is possible to use other formats with the limitation described in the table 2.1 :

Dimension	Minimum	Optimal (A4)	Maximum	Unit
Height	200	297	310	mm
Width	200	210	250	mm

Table 2.1 : Dimensions of the stick sheets

Figure 2 shows a correct installation of one A4 (210mm x 297mm) sticky sheet.



Figure 2: e-GLEEK® equipped with one A4 sticky sheet

2.3 Sticky faces

The number of faces used to trap insects depends on your procurement. Only the face in front of the camera will be examined. The glue layer **MUST** be homogeneous and can, to some extent, exhibit some reflects.

Note 1 : Defects on the sheet can generate abusive counts

Note 2 : Lines, texts and logos can generate abusive counts. Virgin sheets are recommended..

2.4 Pheromones caps

In case a pheromone caps is used, it can be fixed at the center of the sheet. This cap, as any other parasitic element, cab be counted as a large insect.



Figure 3: Example of one pheromone cap installed at the center of the glued sheet

3 STICKY SHEET PREPARATION

3.1 Punching fixing holes

e-GLEEK® has upto 6 fixing points at the periphery of the large metallic plate. We strongly recommend to perforate the sheet using a small and low cost puncher as indicated in Figure 5. You can then fix the sheet using small pieces of horticultural lace or elastic bracelets.



Figure 4: Small puncher used to make fixation holes in the glued sheet

The six holes will be in correct alignment with the 6 fixation lugs of the large metallic plate.

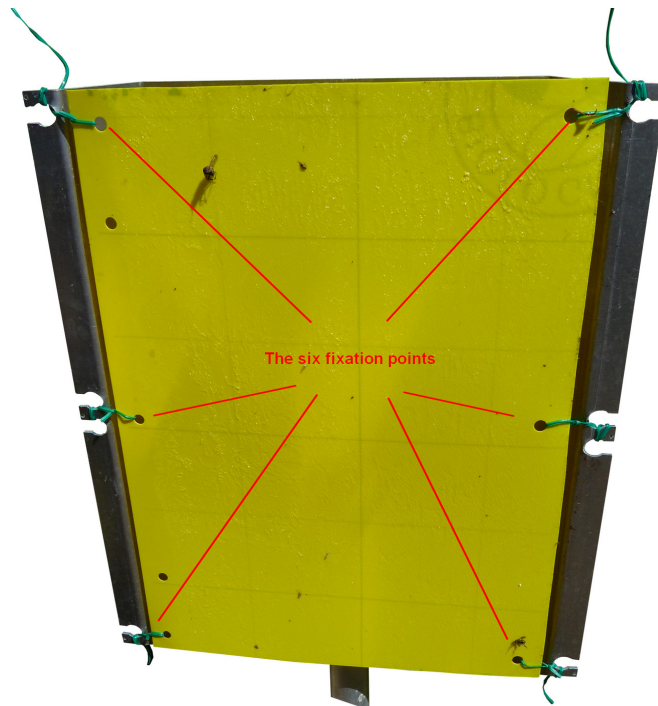


Figure 6:
Figure 5: The fixation lugs were in good correspondence with the holes of the sheet

3.2 Low cost and easy fixation

To fix the sheet correctly, we have selected a very low cost and usually available in growing facilities: the horticultural lace. The illustration of the material we use is given in figure 7.

Any fixing point of the sheet would require about 5cm of the lace. It is very robust, waterproof and is a very low cost solution.

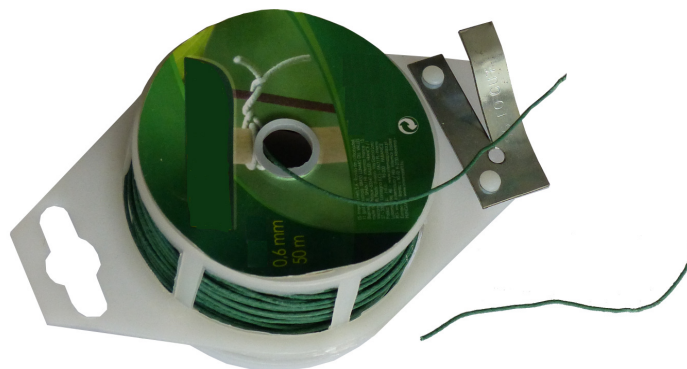


Figure 7: Example of the lace we have used to fix the sheet of glued paper.

3.3 A correct installation

The sheet with the holes you have made previously (see § 3.1) will be fixed with laces as indicated in the Figure 8. Make sure the sheet is correctly centred so the image capture by the camera will be appropriate.

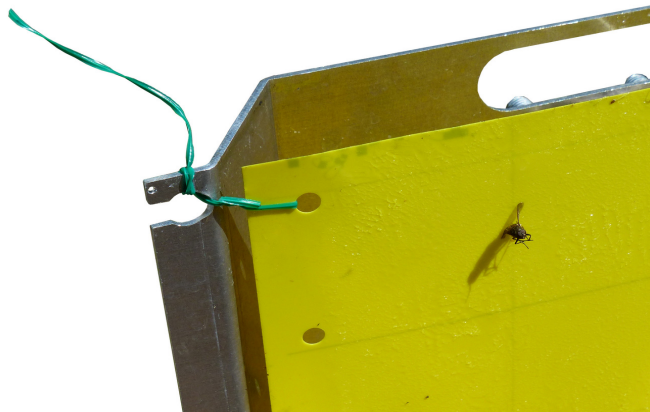


Figure 8: A detail of the lace and the chromatic sheet

3.4 Flatness of the sheet

In order to count insects of size lower than 1mm, the image must be perfect. All part of the sheet must have a correct focus to get a clear image that can be further processed. The flatness of the sheet is thus very important. Any deviation could make the counting erroneous..

3.5 Distance from the optic and the surface of the sheet

The distance between the surface of the sheet and the optic is fundamental. The focus is processed during manufacturing and can not be tuned in the field. Therefore, the distance between the elements must be kept at $16,5\text{cm} \pm 0,5\text{cm}$. The drawing in Fig.9 describes this dimension.



Figure 9: Distance between sheet and optic element

PS : To obtain and keep the optic bloc waterproof, there is no possibility to tune the focus in the field.

3.6 Area of the sheet used for the counting of insects

In order to guaranty the homogeneity between traps and various sticky sheets, the counting is not executed using the whole surface of the sheet. Only a surface corresponding to a disc of about 20cm diameter is monitored. The center of the disk is in alignment with the optic axis. This disc is symbolized by the orange surface in Figure 10.

All area outside of the disc is not counted by the system. However, since the images are sent and available at the e-GLEEK® server, there are still possibilities for people to make manual counting of the entire sheet surface.

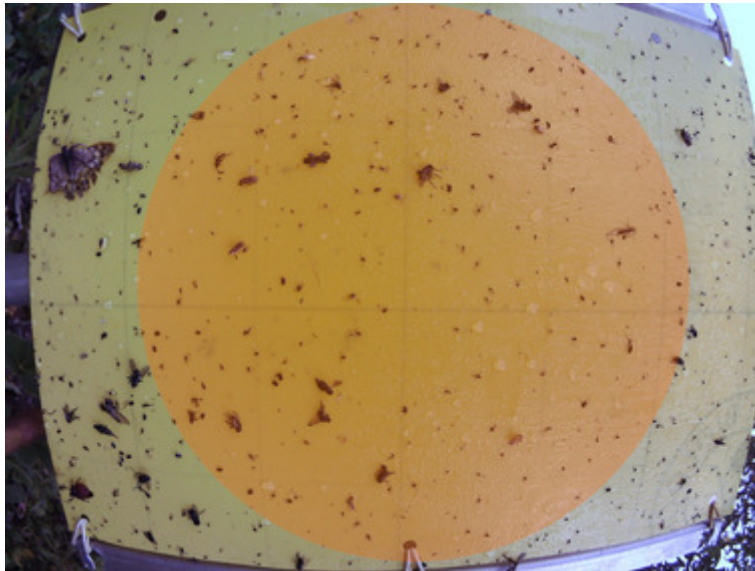


Figure 10: A disc of about 20cm diameter is used as insect counting area.