

GILSON FLY FOOD DISPENSER



TECHNICAL NOTE TN229

GILSON APPLICATIONS LABORATORIES

INTRODUCTION

Did you know that about 75% of known human disease genes have a recognizable match in the genome of the fruit fly? Also, 50% of fly protein sequences have mammalian analogues. Due to the similarities at the molecular level between humans and fruit flies (*Drosophila melanogaster*), these little creatures are excellent models for studying underlying mechanisms of human disease. The need to efficiently grow fruit flies for use in research is of real concern. How do we feed all of these little mouths? Manually filling vials with fly food can be labor intensive and time consuming and messy work!

Introducing: The Gilson Fly Food Dispenser

With this turnkey solution from Gilson, quoting an automated fly media dispenser has never been easier. Simply select the *Drosophila* stock bottles of choice (these can be purchased from leading suppliers such as Genessee Scientific) and use this Tech Note to identify the components necessary to complete the instrument configuration.

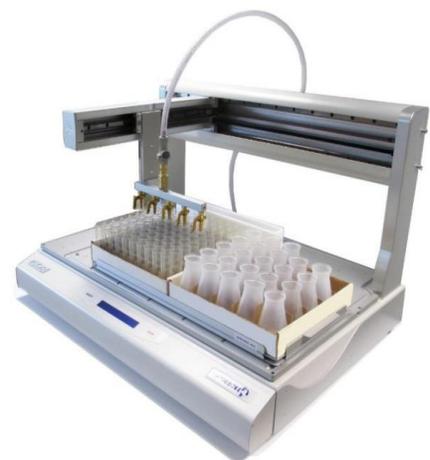
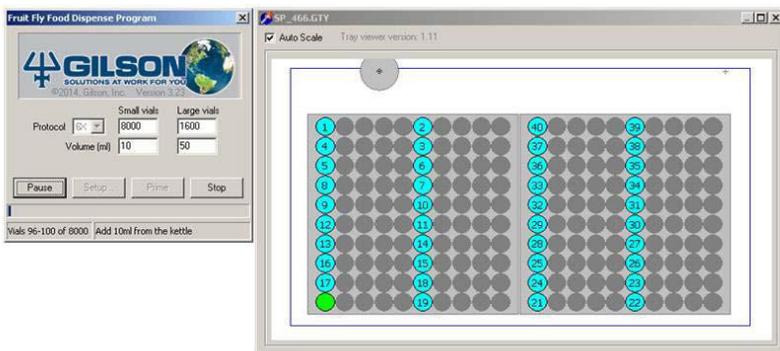


Figure 1
The Gilson Fly Food Dispenser

EXAMPLE CUSTOMER

Customer: Gene Center of the University of Munich

Background

This lab utilizes drosophila fly gene alteration studies to research glial cells in the blood-brain barrier. They use a Gilson special, the Fly Food Dispenser to dispense fly food into vials at regular intervals.

Process Summary

- Over 10,000 fly samples are kept in a dedicated room
- At 1 week intervals, the vials containing flies and their food need to be cycled to add new food
- Fly food is prepared in a large kettle, approximately 2 ft. x 2 ft
- The Gilson Fly Food Dispenser takes fly food directly from the preparation kettle and delivers it to vials
- Vials are capped and transported to the fly room
- Labels from old fly vials are manually transferred to their corresponding new vial
- The open ends of the two corresponding vials are placed together so flies can be transferred to the new vials
- Old vials are discarded (approximately 10,000 per week)
- Total time with user supervision and intervention between runs is around 4 hours
- Flies go to a variety of different labs at the gene center, including high throughput screening labs

The Fly Food Dispenser System is controlled by a simple and easy to use program designed for a Windows XP/7/10 operating systems. The program provides simple, single page set up of the system and the ability to support the different layouts of the bed of the GX-281 Liquid Handler.

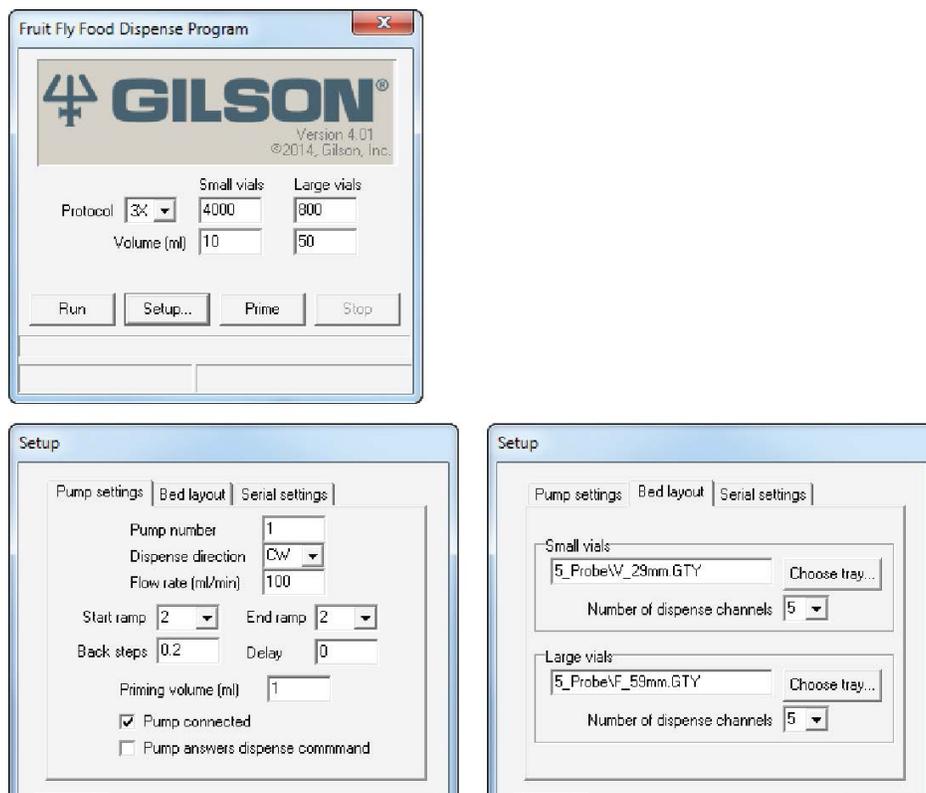


Figure 2

System Settings for Pump Control and browsing for provided tray files to support the different tray layouts available

RECIPES

Fly food is a gel at room temperature. When heated to 65° C it becomes a liquid with the consistency of thin oatmeal and may then be dispensed into tubes or other vessels. A typical recipe (obtained compliments of the Yale School of Medicine, New Haven, CT) contains the following ingredients: (Table 1)

Propionic acid is added as an antifungal agent. There are alternative formulations that use the commercial anti-fungal agent known as Tegosept, a substance containing methylparaben. The ingredients are mixed in a large heated pot with a large stainless steel stirrer. The fungicidal agent is added last after the solution has cooled to prevent any heat inactivation. The solution is then ready to dispense into appropriate vessels.

The Gilson Fly Food System consists of the liquid handler, pump, software, dispense heads, and other accessories shown here. The customer will need to order other items such as:

- Fly food and filler
- Drosophila bottles
- Cook bowls and mixing apparatus

Note: that the Configuration outlined in this document represents a typical system layout based on currently available options. The system can be further customized to suit the needs of a specific laboratory.

Please contact the Technical Service Department and techsupport@gilson.com for any additional special requests.

Table 1

Recipe

INGREDIENT	QUANTITY
Water	57.2 L
Agar	355 g
Molasses	4.7 L
Corn Meal	3,840 g
Yeast	510 g
Propionic Acid	745 g

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