

ONSET HOBO® TEMP RECORDER¹

Dean McCraw²

Most all Southern Nursery Managers use computers in the day to day operation of their nurseries. The HOBO® temperature recorder used in conjunction with the computer now gives nursery managers a cost effective and reliable tool for managing their cooling operations.

Manufactured by Onset Computer Corp., the HOBO@ has a temperature operating range of 20°C to +70°C (-4°F to +158°F). Weighing in at less than one oz., its small size adds to its versatility (fig. 1). Battery life of the unit is rated at 1.5 years in continuous use. Our experience has shown that the battery should be changed once a year, which we usually do at the start of our lifting season.

The unit is capable of recording 1800 data points. These points can be set for various interval periods. The shortest interval period is 15 minutes with a data point collected every 0.5 seconds. The longest interval period is 675 days with a data point collected every 9 hours.

The HOBO@ has a red light that blinks while it is recording. The light blinks brightly at every measurement and weakly every two seconds if the interval between measurements is longer than two seconds.

The unit can be set to record temperature in either Fahrenheit or Celsius. This is not critical as the recorded data can be converted between Fahrenheit and Celsius when the unit is downloaded.



Figure 1-The Onset HOBO® Temp Recorder.

As noted initially, this unit does not function without the aid of a personal computer. The HOBO connects to the computer using a special cable, which is attached to the Com (Serial) port of the computer. When you purchase the download software, the cable is included. The software is appropriately named **BoxCar** (as every HOBO@ needs a Boxcar), and allows you to launch the unit or download the data points.

List price for the HOBO@ is \$49.95 each and the **BoxCar** software package, including the cable, is \$14.00. Units can be purchased directly from Onset Computer Corp at (508) 563-9000 or at their web site at www.onsetcomp.com and can also be purchased through Forestry Suppliers. The HOBO@ is warranted to be free from defects for a period of one year from the date of purchase.

Our main use of these units has been for tracking cooling temperatures in our cooler and refrigerated vans. We have used the units for the past two lifting seasons with very good success. When used in seedling vans the units are contained inside a watertight hard plastic case. These cases are mounted to the underside of the seedling racks to **avoid** damage (fig. 2). The unit must be mounted far enough away from the door of the seedling van to avoid the sunlight that may affect the readings.

The biggest problem our field people encountered was their inability to read the recorder in the field. We solved this by

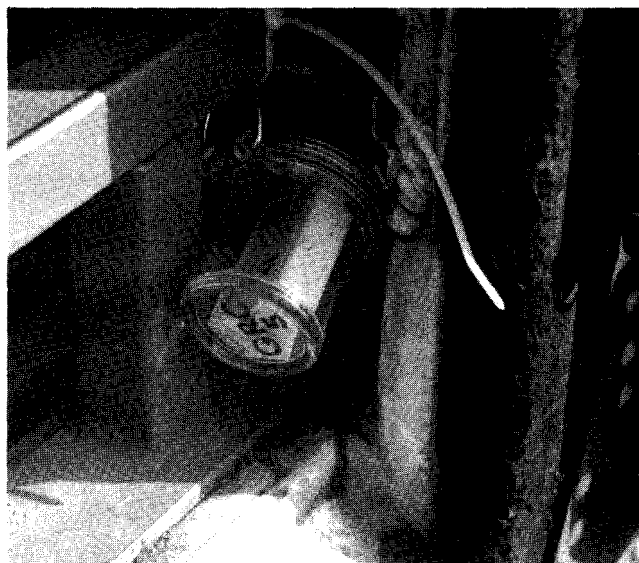


Figure 2-The mounting of the Onset HOBO® Recorder in the rear of a refrigerated van.

¹McGraw, D. 1999. Onset HOBO® temp recorder. In: Landis, T.D.; Bamett, J.P., tech. coords. National proceedings: forest and conservation nursery associations—1998. Gen. Tech. Rep. SRS-25. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station: 3-4.

²Rayonier, Rt 2 Box 1975, Glennville, GA 30427.

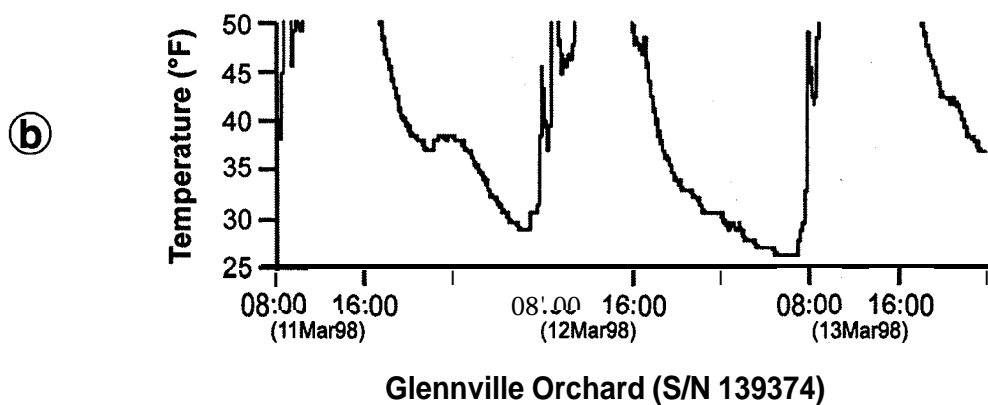
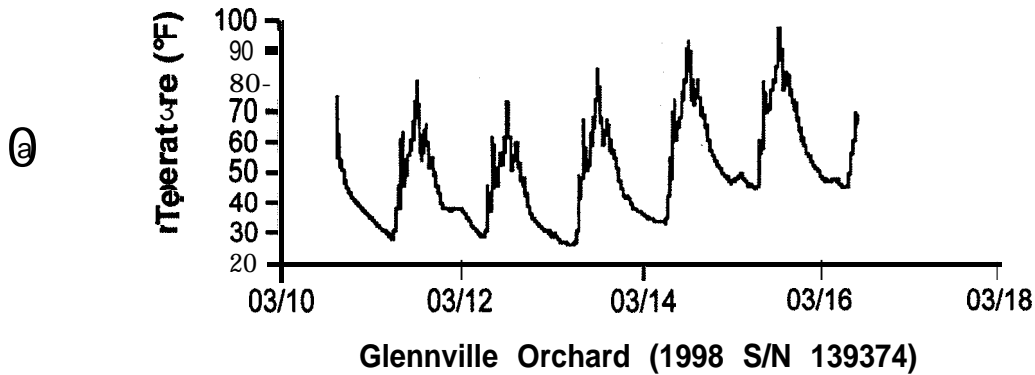


Figure 3—Temperature graph from Hobo@ sensor for the Glennville seed orchard (a) and a zoom view of the same graph (b).

purchasing a \$9.99 digital **min/max** thermometer. This allows the field personnel to check temperature ranges as long as they reset the **max/min** temperatures on the thermometer.

The HOBOb@ unit has a temperature sensor that can be placed outside the case. The sensor has a greater range outside the case but we have not found a use for this to date.

The output of the data points with the **BoxCar** software is presented in a line graph (see example). The software allows you to zoom into a small area of the graph so the data points can be seen in more detail (see example). If the

graph does not give you the detail you need, then you can export the data points to a spreadsheet. The latest version of **BoxCar** has an icon for both Excel and Lotus 123.

In recap the advantages of the **HOBOb@** temperature recorder are:

- Small size.
- Low initial price.
- Easy to download.
- More durable than other data loggers used.