Blaylock, B. Gordon. Oak Ridge National Laboratory, Oak Ridge, Tennessee. A population cage for counting adult Drosophila populations.

A small population cage that will hold approximately one thousand flies has been successfully in competition experiments. The total adult population can be counted and transferred with minimum effort to another cage.

The cage is made from an acrylic plastic container that is 12.5 cm in diameter and 13 cm in height. Three holes, 4.5 cm in diameter, a size that will accomodate a no. 10 rubber stopper, are made in the bottom of the plastic container. The holes can be bored by melting the plastic with a hot metal lid of the desired diameter. The top of the cage is a short stem, polyethylene funnel 15.5 cm in diameter. Two openings approximately 3 by 5 cm are made on opposite sides of the funnel for ventilation. The openings are covered with a 40 mesh screen which is easily secured in place by pressing the overlapping edges into the polyethylene with a small, hot metal spatula. Pliobond adhesive (The Goodyear Tire & Rubber Company) is used to cement the funnel to the plastic container. After drying the rubber stoppers are inserted and the cage fulled with water to test for tightness. Buxseal (The Johns-Manville Company) or the Pliobond adhesive can be used to fill leaks. If Duxseal is used, the cage is ready for immediate use since no drying time is required.

The food cup is a 40 ml glass jar that is glued onto the rubber stopper with the Pliobond adhesive. To count the adult population and change cages, the food cups containing the larvae and pupae are removed and placed in a clean cage. Plain rubber stoppers are inserted in place of the stoppers holding the food cups. Few flies will be lost in the transfer if the cage is placed under a bright light and the food cups tapped several times to drive away adults. The cage is inverted, and a small number of flies are shaken out of the cage through the funnel stem into an etherizer. Flies are then counted and transferred to another cage, and the process repeated until the entire population has been counted.

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