

Observations on eggs, larvae, pupae and flies

Beadle, G.W. Collection of eggs. For the collection of eggs for measures of egg or larval-pupal mortality, small paper spoons containing food have commonly been used. They have the disadvantages of giving a food mass of unequal thickness and usually with a rounded surface. Detection of all the eggs is often difficult. Small nickel boxes made of sheet material about 0.3 mm. thick and of the dimensions 15 x 40 x 4 mm. with a strip 45 x 10 mm. soldered to the bottom so as to project about 30 mm. have been found to be very useful for egg counts and for collecting larvae of known ages. Standard cornmeal agar (containing animal charcoal, if desired, to increase the contrast) is pipetted into these boxes, filling them level full. They can be used in 20 x 100 mm. vials very conveniently. Examinations under a binocular can be made very rapidly. Experiments with different media with and without yeast indicate that yeast is a very important factor in stimulating rapid egg-laying. Standard food "painted" with a rather heavy suspension of yeast gives very satisfactory results. If it is necessary to have the eggs develop into adults, it is easy to slide the food mass out of the box on a cardboard strip 9' x 70 mm. It can then be transferred with eggs or larvae to a standard culture bottle containing food. With care, no eggs or larvae need be lost in the transfer. (Copied from DIS-4:64).

Marshak, A. Collection of eggs. Instead of using the metal containers for the agar-bone black medium, as suggested by Beadle, I have used strips of wood which can be easily cut and grooved with a buzz saw. The ends are then closed with plastic wood and the whole affair paraffined. The groove is filled with the agar medium till flush with the top and either seeded with yeast or moistened with acetic acid, and placed in a shell vial that is slightly longer than the wood strip. Egg counts can be rapidly and accurately made since almost the whole width of the groove is in the low power field of the binocular dissection scope. The strips may be used repeatedly by cleaning, autoclaving, and reparaftining.

Beadle, G.W. and Boris Ephrussi  
Collecting eggs and larvae. For collecting reasonably large numbers of eggs over known periods of time, 500 cc. Berzelius beakers (without lip), stoppered with cotton enclosed in cheese-cloth, have been found convenient as containers for the adult flies. Eggs are collected on ordinary food heavily seeded with fresh yeast and held in boxes made of 26 gauge "Monel" metal. These are easily made from 2 by 3 inch pieces cut and folded to form a box 1-1/4 by 2-1/4 inches and 3/8 inches deep. A handle projecting 1 inch at one end is useful for handling these boxes with forceps. Young larvae can

conveniently be removed at desired intervals from the food surface and be transferred to appropriate containers. Straight-sided finger bowls containing about 130 cc of food and closed with cheese-cloth held on with a wide rubber band, can be satisfactorily used for growing up to 100 larvae. The food surface should be heavily seeded with fresh yeast.

Crow, F. A. E. Egg Counts.

For counting daily egg output of single females a modification of the spoon technique is used. Small slices of cornmeal agar food cut from suitable blocks are placed on the spoons with a seeding of yeast. These have the advantages of being easily examined, readily detached and possessing a rough surface.

Mickoy, George H. Collecting EGGS.

Our (Austin, Texas) routine method of getting eggs is to keep a single female and two or three males together for a few hours in a vial containing a spoon of food. About 4:30 or 5:00 P.M. the spoon is replaced with a fresh one in which the food has been poured and sprayed four or five hours earlier (in order to allow the yeast to start its growth) with a heavy suspension of fresh Fleischman's yeast containing a drop or two of glacial acetic acid. The food should be more fluid than that ordinarily used in food vials and is improved for the purpose of seeding the eggs by adding enough powdered lamp black to color it a dark gray. The flies lay better if they have not been etherized for at least 24 hours; they also lay more rapidly in the dark about 6 P.M. The vials should lie on their sides to give a horizontal laying surface.

The spoons are cardboard picnic spoons with the handles clipped off, the sides trimmed to fit the vials and the tips pointed in order to reduce the surface which may touch the bottom of the vial and crush the flies.

Schweitzer, Morton D. Collecting EGGS.

During the past year various techniques of collecting eggs have been tried. The following method has regularly yielded 100-600 eggs per culture per four hour period, with an average of 300. Not infrequently, on the first day of collection, the yield has been as high as 800-1300 in a four-hour egg-laying period. (*D. melanogaster*, *pseudo-obscura*, and to a small extent *affinis* and *miranda*)

The important precautions to be observed for optimum yield of eggs are:

- (a) The females should not be etherized at any time prior to use for this purpose.
- (b) The medium should be seeded with yeast at least 6 hours and not over 24 hours before use.
- (c) The surface of the medium should be slightly roughened just before being placed with the flies.