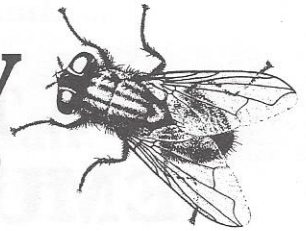


Behold! The Fly

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SOME call them gentles and wrigglers, and others call them maggots and larvae. No matter what they are called, they are immature flies and are a splendid feeder insect. Flies are basic food in nature and can be admirably applied in captive breeding. The larvae of the Common Housefly, *Musca domestica*, insectary raised on a vegetable substrate, is arguably the best.

Musca domestica is one of the most widely distributed organisms on earth and occupies a basic position in the food chain. It is, in every stage of its life cycle, food for some other animal or plant. If for some reason an insect population fails, all that consume them suffer diminished fecundity and possible starvation. If the insect population is robust, and the other myriad environmental factors aren't weakening the system, reproduction and survival can be wildly successful. Far from disgusting, this little bug is noble and is "consumed with alacrity" by Rothschild's Pheasants straight from the jungle, penny-sized frogs and canaries, captive bred for generations. The housefly is a practical feeder insect partly because a lot of what you've heard about its legendary reproductive capacity is true. For something their size they grow in huge numbers in a very short time. That thriving population is manageable and can be economically harvested in numbers sufficient for live use, preservation and as an ingredient in secondary products. The housefly in its several forms will not fill every niche in live feeder insect use, but it will fill many better than anything else available so far.

Insect-eating birds are generally brought into peak breeding condition by eating the foods that are best suited for rearing their young. The effect of that food is not limited to just its nutritional value. Abundant availability of the right food has a positive effect beyond nutritional concerns and has real environmental and behavioral significance for captive breeding birds. Adult birds that have some live, soft, wriggling larvae, knowing that their young will thrive on just such a food, seem to have a heightened sense of confidence that results in better and more fertile eggs. Since the attractive live larvae are exactly what the chicks need, they start eating far sooner than if left to figure out that they should peck a lethargic or headless beetle nymph or some grain compound. Another noticeable behavioral change with use of dry fly pupae is a reduction in feather picking and cannibalism among adult birds.

The two most useful of the developmental stages of the housefly, as a feeder insect, are the larvae (maggot) and the pupae (cocoon). The maggot's job is to put on maximum weight in the shortest time possible. It is a simple creature made of excellent material. Its substance, over a time as little as one hundred hours, allows for the metamorphosis of a simple "eating machine" into a complicated and elegant master of the earth. That substance has valuable proteins, 18.5% in live larvae, and lipids. During metamorphosis amazing chemical changes

take place. From larvae to pupae the Vitamin A content increases five and a half times and Vitamin C, 12 times. A calcium to phosphorus ratio of 1:1 is supposed to be best for birds. In the most common feeder insects the C:P's are: cricket, 1:2, meal worm, 1:13.5, and housefly 1:3.4. A C:P ratio of 1:1 was achieved by Allen and Oftedal for crickets, and I regularly augment housefly larvae to 1:2.5. One pound of clean, live housefly larvae, approximately 10,000, will fill a standard plastic, gallon milk jug two and a quarter inches deep.

But, all of that goodness is of little use if they are too hard to find, use, control or are too expensive. Use the correct feeding techniques, avoid over feeding, and there will be no need to worry about the ambient fly population increasing. If properly handled, shipped and cared for, housefly larvae keep well for up to three weeks. It is important that the fly larvae be raised on a vegetable diet. If the maggot eats meat, it has contact with the bacteria associated with droop-neck. A vegetarian diet for the larvae eliminates this worry. Having no exoskeleton the fly larvae are quite active and flexible and easily catch a chick's eye. The maggot does not need to be beheaded before presentation since it cannot bite back. Its light color also helps visibility. Chicks grow well with an abundant supply of larvae, free choice or as top dressing on other food, until fledged. Reduce the live insects as the chicks fledge and transition to dried pupae. When the maggot pupates the outer skin layers toughen, shrink and darken. Insectivores know this and still recognize the object as food...bug! When dried, the pupae is a natural pellet that contains a known amount of nutrients, packaged to the birds' satisfaction, that is easily stored and used. Another application for the fly is as adult on the wing. If that is the case, like for certain waterfowl, adult flies will emerge from live larvae, if left to pupate, in several days.

In the sixteen years that I have studied and bred these amazing four-wingers, others fed them out in all the stages and presentations I've mentioned above to nearly two hundred species of birds. The birds appeared to be healthier for it, producing more and better offspring. Many reptiles, amphibians, fish, other insects and mammals eat them too. Bromeliads, orchids and tomatoes consume them in their own special ways with obvious good effect. Quite a number of the consuming animals were thought to have no taste for bugs. This fly is a splendid tool for the aviculturist. It works very well, is economical and the existing delivery system insures that they arrive in perfect condition. The looming threat of outside regulation and interference means that breeders will need to become more efficient. The informed use of *Musca domestica* in captive breeding programs will help in many ways. With the game bird people I've been working with and supplying this food to throughout the country, they've been reporting better fertility, and chicks start eating faster and grow up into finer adults with little or no mortality during the growing up process.