AN IDEAL AVIAN HOST FOR LABORATORY COLONIES OF ORNITHOPHILIC MOSQUITOES

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Gerberg (1970) lists 86 species of mosquitoes maintained in laboratories throughout the world. Although this list is far from complete, it indicates the extent to which mosquitoes are used in research. Maintenance of a colony of mosquitoes requires that females have access to a vertebrate blood meal on a regular schedule. Thus, host animals must also be maintained in or near the laboratory. This is not a significant problem for species of mosquitoes requiring mammalian blood; guinea pigs are excellent hosts for many zoophilic mosquitoes. Maintaining birds in a laboratory for species of mosquitoes requiring avian blood is more difficult. No single species of bird has the same advantages as a laboratory host as do guinea pigs with regard to rearing and acceptability by mosquitoes. Chicks are the avian host of choice of many researchers who work with ornithophilic species of mosquitoes. But chicks grow rapidly and are awkward to restrain and introduce to a mosquito colony when they are only a few weeks old. In our experience pigeons have not been satisfactory hosts because only a small percentage of Culex mosquitoes in our laboratory (C. tarsalis and C. pipiens pipiens) take blood from them. Moreover, they are unpleasant to maintain in a laboratory. Other birds, from day-old chicks (destroyed after each feeding) to parakeets, have been used as hosts for ornithophilic mosquitoes, but most have significant disadvantages either in cost, maintenance, or mosquito acceptance.

In an effort to locate an ideal host for Culex mosquitoes, Coturnix quail (Figure 1) were used with highly satisfactory results. The Coturnix quail, a native gamebird of Europe and Asia, is about the size of a bobwhite (160–175 g) when full grown. This bird is a routine experimental animal in vertebrate physiology at Iowa State.

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Fig. 1.—Adult female Coturnix quail.
belt for easy cleaning: soiled paper can be rolled up, torn off, and thrown away each day, thus eliminating odor, scraping and washing of cages, and accumulating droppings in which flies can breed.

To feed mosquitoes, an adult quail is restrained in a small wire-mesh cage then placed inside a 45 x 45 x 60 cm. Gerberg mosquito cage. Generally, quail are introduced into the colony before the beginning of a 90 min twilight period programmed into our rearing facilities. Quail remain with the colony during the night and are removed the next morning. Most females of both *C. torralae* and *C. pipiens pipiens* feed to repletion when exposed to quail under these conditions. In one check, 189 of 200 female *C. pipiens pipiens* took a blood meal 5 days after emergence from pupae collected in the field.

For care in handling, cleanliness, and acceptability by *Culex* mosquitoes, *Coturnix* quail are unusually good hosts for laboratory colonies of ornithophilic species of mosquitoes. A quail manual (Marsh Farms) provides instructions for incubating, feeding, sexing, and preventing disease in laboratory colonies of *Coturnix* quail. Researchers rearing quail must remember that special care is required to provide temperature control during the first 2 weeks. Quail are mature and begin laying eggs at about 6 weeks.

**Literature Cited**


X- and Gamma Rays Compared as Sterilants for Male *Culex pipiens quinquefasciatus* Say

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*Culex pipiens quinquefasciatus* Say (= *fatigans* Wiedemann) is one of the species of mosquitoes most likely to be controlled with a sterile-male release program. Investigations into the possibility of using this method of control have been conducted all over the world in the past few years. Ramakrishnan et al. (1962) reported that male sterilization was obtained with 7,000 R of gamma rays. Krishnamurthy et al. (1962) in a small-scale

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