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A DISPOSABLE INSULATED CONTAINER FOR REARING FALL WEBWORM LARVAE IN THE LABORATORY

Abstract.—Plastic-foam cups with plastic lids were found to be more suitable for rearing larvae of the fall webworm, *Hyphantria cunea* Drury, than other types of containers tested. These cups are inexpensive, lightweight, rigid, and translucent; and they protect the contents from rapid fluctuations in temperature.

Many types of containers have been tried for rearing larvae of various lepidopterous species. Glass vials *(Miskimen 1965),* polyethylene or polystyrene plastic containers and petri dishes, and plastic-coated or waxed-paper cups have been used *(Paschke 1964; Guerra and Ouye 1968).* The type and size of the rearing container have been found to affect the results of a rearing program *(Miskimen 1965).* We have found that plastic-foam cups can be used successfully for rearing larvae of the fall webworm, *Hyphantria cunea* Drury (Lepidoptera: Arctiidae).

Each of these types of containers was used in mass-rearing the fall webworm. They were tested to see if they would provide a micro-environment similar to the natural conditions described by Wellington *et al (1954),* who reported that feeding-stage larvae were more active in their natural habitat on warm, humid, overcast days. Feeding activity was observed to increase markedly during periods when direct sunlight was not present.

Transparent plastic containers, glass vials, and petri dishes did not provide optimum light conditions. It was also difficult to control the humidity in them. Plastic-coated paper containers are almost opaque,

making it difficult to provide suitable light conditions for the larvae. Waxed-paper cups and plastic-foam cups with plastic lids provided the most suitable environmental conditions.

These two types of containers are inexpensive and disposable—a very desirable feature in any mass-rearing program *(Paschke 1964)*. They are translucent and can be modified to maintain a satisfactory level of humidity. Moisture within the container is supplied by an artificial diet or by plant material used as food for the larvae. Adequate control of humidity is obtained by punching holes in the side or lid with a needle. The number of holes depends on the external environment, the number and size of the larvae, and the amount of food present in the container. If too many holes are punched, they can be covered with masking tape.

The plastic-foam cup[1] has more advantages than the waxed-paper cup. It is more rigid and will withstand frequent handling. Hot artificial-diet media can be poured directly into the cup—a practice that usually results in melting the wax of a waxed-paper cup. In addition, the insulating effect of the plastic-foam moderates the rapid temperature changes usually experienced when rearing containers are moved into and out of incubators (table 1). In other experimental situations, the plastic-foam cup allows a period of acclimation to temperature changes.

[1]Hot or cold insulated plastic cup, Dart Container Corporation, Mason, Michigan. Mention of a trade name should not be taken as endorsement of this product by the Forest Service or the U. S. Department of Agriculture.

Table 1.—*Comparison of the insulating value of 6-ounce plastic-foam cups and waxed-paper cups when removed from a 21.1° C. environment and placed in a 4.4° C. environment*

Elapsed time (seconds)	Air temperature differential[1]	
	Plastic foam	Waxed paper
	°C.	°C.
15	5.6	1.6
30	6.7	1.6
45	5.6	1.6
60	3.3	1.6
75	2.8	1.6
90	2.2	1.1
105[2]	1.1	1.1

[1]Difference between the air temperature measured at the outer surface and in the center of the container.

[2]Temperature at the outer surface reached 4.4° C. after 180 seconds.

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