fields, 90% of the plants failed to produce normal panicles. Average yields were about 0.4 t/ha; however, the resistant variety RD9 and some traditional tall varieties grown in the area yielded normally. Farmers reported a heavy infestation of brown planthopper at the beginning of the season, but there were no severe losses from hopperburn.

Much of the affected area was planted by broadcasting pregerminated seed, so plant spacing was close. Surprisingly, transplanted crops of traditional tall, susceptible varieties in adjacent fields were normal.

Symptoms on the diseased plants were similar to those described in the October 1977 issue of the *IRRI Reporter* except that leaves were not extremely distorted. Stunting was so extensive and severe in some fields that farmers plowed their crops under before flowering so they could plant a dry-season crop.

Pest management and control

INSECTS

A new cage for rearing hopper parasites

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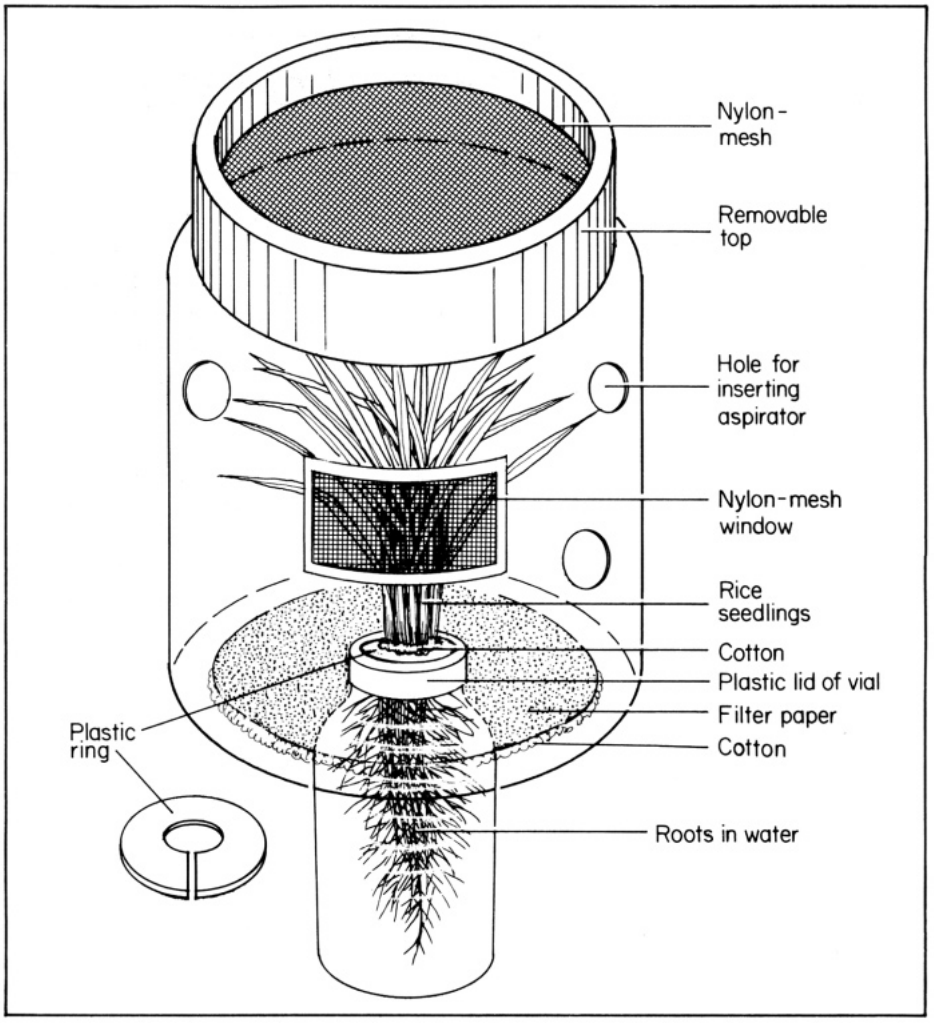
A new cage to rear parasites of rice leafhoppers and planthoppers has been developed. The main disadvantages of the traditional system of rearing hoppers in glass tubes or plastic mylar cages are eliminated in the new cage. Such disadvantages include excessive moisture, difficulty in changing food plants, contamination by soil-inhabiting nematodes, mortality and loss of parasite larvae and pupae (especially those that pupate in the soil), and difficulty in rearing large numbers of hoppers.

The new cage, which is easy to build, is made of a 17' × 12-cm cylindrical transparent plastic container with a removable top (see figure). For aeration, a piece of nylon mesh cloth is fixed to the lid and another to the side window. A vial lid with a plastic screwcap and a large hole in the top is firmly cemented in a hole at the bottom of the container. Thus, the glass vial can be unscrewed and detached while its lid remains attached to the cage. Rice seedling roots are inserted in the water-filled vial and a plastic ring with a small hole, which fits in the vial lid, is fixed around the seedling stems. The space left around the stems is then plugged with cotton. Rice seedlings are easily inserted in the cage through the large hole in the vial lid. A layer of wet cotton spread on the bottom of the cage and covered with filter paper will hold sufficient moisture to maintain the hoppers. Field-collected hoppers are released in the cage through the small holes in the cage walls with an aspirator.



New cage for rearing hopper parasites.

The holes are then plugged with cotton balls. About 100 hoppers can be reared in the cage. Rice seedlings can be changed when necessary and moisture can be maintained by dropping water on the filter paper. The emerged larvae of parasites usually pupate at the bottom of the cage or on the leaves and can easily be seen through the transparent plastic.

The cage has been very useful for breeding hopper parasites, for observing their behavior and life cycles, and for determining the efficiency of parasites and predators in hopper control.