Perhaps the two most serious deterrents to construction of rainshelters for producing vegetables are a source of water for irrigation and the high cost and complexities involved in constructing rainshelters. This article will illustrate and describe how to construct a simple, low cost rainshelter which is 7½ ft. high and 14½ ft. wide. Both construction and change of the plastic covering can be accomplished rapidly. This rainshelter is not designed for windy areas but it can tolerate an occasional small gust of wind as might occur in the Volcano or Kainalu, Kona areas; this rainshelter would not be expected to withstand the heavy winds of the Kamuela area.

PROcedure

1. Select a site. The land does not need to be level; however, water is applied more evenly by drip irrigation if the land is level.

2. Place 10 ft. long posts in a straight line 12–16 ft. apart. The top of the posts should be 7½ ft. high. Posts may be wooden or steel; an ohia post is illustrated. Spacing is dependent upon the possible use of the posts for a trellis structure.

3. Connect the posts with a 2" x 4" purlin.

4. Assemble 25 ft. lengths of ¾" schedule 40 PVC pipes by gluing a 20 ft. length to a 5 ft. length. Thinner grades of PVC pipes are not recommended since they may crease immediately above the ground level.

5. Push one end of the PVC pipe 1 ft. into the soil at a distance of 7½ ft. from the center purlin line.

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6. Bend the pipe over the center punch to form an arch and puncture of the plotted foot.

8. Wrap the ends of the 2" x 4" with plastic to prevent

7. The PVC pipe to the center punch with a heavy gauge double forward-backward movement.

strike or a plastic strip to prevent internal movement and to
9. Unroll a 20 x 100 ft. sheet of plastic film. Use only a film which can be expected to last longer than one year such as Monsanto 602 (4–6 mil).

10. Sandwich the length edge of plastic between two 1” x 3” boards which have been painted white and nail these together. This operation is completed on the ground. As an alternative to 1” x 3” lumber various plastic film attachment devices are available and will facilitate this operation; however, this would prevent an added cost.

11. Place the plastic cover over the arches by lifting one side completely over the top of the arches and center purlin. As few as two people can perform this operation; however, six people (three on each side) could place the cover on within five minutes.

12. Adjust each side so there is about 1/4 ft. air space and place a few cinder blocks or other weights to prevent either side from raising or lowering. If a greater air space is needed (e.g. at a lower elevation) either narrower plastic or longer arches may be used. Unless the rainshelter is to be cooled by a fan, there must be an air space at the bottom or else the house will become excessively hot for most vegetables.

13. On the ends of the house, connect the plastic film to a 20 ft. PVC pipe by taping or tying and proceed to roll about 1 ft. of plastic film onto the pipe. Tape or tie the bottom of the 20 ft. pipe to the end arch.

The house is now complete, and ready to produce high quality vegetables.

CONSTRUCTION MATERIALS
(for a 96 x 14½ ft. Rainshelter)

a. 7–9 10 ft. long posts
b. plastic film (20 x 100 ft.) with an expected life of greater than one year
c. 400 ft. of 1” x 3” construction grade lumber
d. 100 ft. 2” x 4” construction grade lumber
e. 880 ft. of 3/4” schedule 40 white PVC pipe
f. Nails, heavy gauge string, white paint, cinder blocks or other weights, PVC glue