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**ROOTING OF STEM CUTTINGS OF BREADFRUIT  
(*ARTOCARPUS ALTILIS* [PARKINS.] FOSB.) UNDER  
INTERMITTENT MIST**

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**Abstract.** Mature, woody, leafless cuttings of 'Ma opu' and 'Maafala' breadfruit rooted with 95% success under intermittent mist in about 10 weeks after treatment with rooting hormones. Some cuttings rooted and/or sent out shoots more rapidly than others and additional time under mist might have produced stronger root systems. There is also a preliminary indication that leafless stem cuttings can be rooted in a shaded transparent plastic tent, used as a humidity chamber. This would be a particularly

useful and practical method where mist propagation facilities are not available.

## INTRODUCTION

The traditional method used for propagating seedless breadfruit in the islands of the Pacific where it is an important staple food is by root suckers or root cuttings (1,2,3,8). Root suckers are encouraged by severing a root an inch or more in diameter which is then uncovered, pulled up and tied to a stake or propped up a few inches above ground level. After a few months an adventitious shoot will emerge from the cut root. Eventually this new shoot with a section of the attached root can be dug up and transplanted. This method is slow, tedious, inefficient, and facilitates the spread of soil-borne pathogens. Root cuttings 2 to 3 cm in diameter and about 20 cm long planted diagonally in sand or sandy soil are sometimes used to propagate seedless breadfruit clones but have the same disadvantages as root suckers and often fail to grow and produce shoots or new roots. Root cuttings and root suckers are also slow to become established as plants and are not an efficient means of propagating large numbers of plants. A detailed account of the establishment and transplanting of plants from root cuttings and root suckers is given by Pope (5).

Breadfruit leaves are large, cumbersome, and so difficult to maintain upright that rooting of leafy cuttings is generally not considered feasible. Most rooting trials with stem cuttings have given negative results, probably because leafy cuttings were used, although some degree of success with stem cuttings has been reported (4,6,7). Because of the relative abundance of stem cutting material it was considered worthwhile to attempt to root stem cuttings using mist propagation facilities and root stimulating hormone mixtures.

## MATERIALS AND METHODS

An experiment was set up at the University of Hawaii at Manoa in 1981 to test the rooting behavior of leafless breadfruit cuttings under intermittent mist. On May 18, 1981, 20 well-matured, 3 to 5 cm diameter leafless cuttings of the cultivar Ma opu were cut into 30 to 40 cm lengths. They were immersed in a Captan slurry for 5 minutes and the terminal end of each cutting was sealed by dipping in melted paraffin wax. Then the basal ends of the cuttings were dipped in a talc dust mixture containing 5 percent captan and 2500 ppm each of IBA and IAA. They were set upright in 10 cm peat pots in a sterile medium consisting of 1:1:1 sphagnum peat moss, medium grade vermiculite, and perlite on a greenhouse bench un-

der intermittent mist with an "on" frequency of 6 seconds every 2 minutes.

After 10 weeks all 20 cuttings had developed shoot growth as well as adventitious root growth from callus tissue which formed at the basal end of the cuttings (Table 1). The cuttings were then transplanted into 20 × 22 cm black plastic bags and placed in a shaded area for 4 months. A count of well-established surviving cuttings on July 20, 1981 showed 19 out of 20 original cuttings growing well enough for transplant to the field (Table 1).

In the 1982 experiment, cuttings of the Maafala cultivar were prepared and handled in the same way as in 1981 except that the rooting hormone mixture contained 4000 ppm IBA but no IAA. Nineteen out of 20 cuttings rooted after 10 weeks (75 days) under intermittent mist (Table 1).

Besides the mist test there were 4 extra cuttings which were treated with the talc/captan/IBA rooting mixture and planted in a 20 cm clay pot in the 1:1:1 peat moss, vermiculite, perlite medium. The entire pot and cuttings were covered with a light gauge plastic bag to make a closed humidity chamber. These cuttings rooted in 11 weeks in a shaded area of the greenhouse without further attention or additional watering and were successfully planted into plastic planting bags.

**Table 1.** Rooting of stem cuttings of 'Ma opu' and 'Maafala' breadfruit under intermittent mist and high humidity.

Cultivar	Starting Date	Rooting Data Taken	Total No. of Cuttings	No. Cuttings Rooted	Percent Rooting
Ma opu	5/19/81	7/30/81	20	19	95
Maafala	3/25/82	6/8/82	20	95	
Maafala*	3/25/82	6/18/82	4	4	100

\* Rooted under plastic bag without mist.

## DISCUSSION

This method of propagating seedless breadfruit appears to be more efficient, rapid, and economical than the traditional sucker or root cutting methods. It is apparent that selected leafless stem cuttings can be rooted fairly rapidly and easily under mist with the use of appropriate rooting hormone treatments.

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## **WESTERN REGION 1982 MERIT AWARD RECIPIENT\***

PRESENTED BY STAN SORENSEN

The Western Region's 1982 Award of Merit is presented to the recipient to recognize his outstanding contribution to his community, the IPPS and the field of plant propagation.

He was a charter member of the Western Region of the International Plant Propagators' Society which held its first meeting in Asilomar, California, in 1960. He was elected to the Executive Committee of the Western Region in 1972. He became president of the Region in 1976-1977 and President of the International Board in 1981-1982.

In 1962 he was elected to the City Council of Fremont, California. He served as mayor for 5 of the 16 years he was on the City Council. During that time the new city grew from 25,000 to over 110,000 in population. He was a driving force in establishing a beautiful 400-acre park in the center of the community, complete with lake and swim lagoon. He worked to save three homes and gardens of historical consequence; namely, the Vallejo Adobe at the old California Nursery, the Joseph Shinn Home, and the Patterson Ranch home and gardens near Coyote Hills. He served on the Alameda Creek-Coyote Hills Joint Agency which guided the development of a 900-acre park on San Francisco Bay, and 14 miles of hiking and equestrian trails along the creeks.

During those 16 years he also served on the regional boards of the San Francisco bay area. He was president of the Association of Bay Area Governments (ABAG), and a member of the Metropolitan Transportation Commission, two planning agencies of the Bay Area.

Born in El Centro, California in 1921 he attended public schools in Piedmont, Sausalito, and Mill Valley, California, then moved to Milwaukee, Wisconsin, for high school. He attended Stanford University, graduating in political science in 1943.

He was then assigned to active duty in the navy. He

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\* Presented at the IPPS Western Region's 1982 banquet.