TARO CULTIVARS IN SAMOA

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Abstract

A Rapid Rural Appraisal was conducted in American Samoa in 1989 to document traditional agricultural practices associated with the growing of taro. From this survey, 22 cultivars of taro were documented where all farmers grew either *Manu'a* or *Niue* cultivars along with a scattering of other cultivars. Twenty-two cultivars were grown in a demonstration plot of 30 ft x 84 ft from September/October of 1989. Their performances were evaluated based on the number of petioles per mother plant, the number of cormels produced, and the weight of the corm.

'Alafua Sunrise' cultivar was introduced to the American Samoa Community College Land Grant Programs from the University of the South Pacific in Western Samoa. It was tried with other local cultivars and has proven to give higher yields with excellent plant vigor, strong petiole production, and acceptable eating quality.

Introduction

Colocasia esculenta (L.) Schott is commonly known in Samoa as *talo*. Among the root crops grown in Samoa, taro ranks first in production and hectarage. Taro is one of the oldest cultivated crops in the world and has long been a staple food of Polynesians as well as the West Indies and the Orient. Taro is propagated vegetatively.

Each village or island perpetuates its own cultivars by local cultural practices and by employing shifting cultivation. They even create new names. In Samoa, taro cultivars are selected based on their quality, high yields, ability to withstand pest and disease problems, and probably their adaptations to certain locations. Taro is an excellent source of energy and has fiber to make the intestines and bowels work properly. *Luau* (leaf) is a delicacy of the Samoans which is prepared from young green leaves of taro. Aside from human food, taro can be used for livestock feed. Taro starch is highly digestible and is recommended for baby food. There are 38 known cultivars of taro in Samoa and hopefully there are still some to be identified. Twenty-one cultivars of taro were collected from the farmers, planted at a spacing of 3 ft x 4 ft, and they were assessed for yield, drought tolerance, and ability to grow under low-input conditions. The local cultivars (21) were compared to the 'Alafua Sunrise', which is an improved cultivar of a cross between the local Samoan cultivar *Manu'a tusitusi mumu* x *Tusitusi*.

The variety plot of 22 cultivars served as an arena for maintaining the crop and preserved the variety from extinction and for future breeding programs. The plot is very useful in research work for agriculture students. Farmers also use the plot to update their knowledge of the cultivar names as well as improving their understanding of other distinguishing characteristics of taro.

Present Work

Collections of taro cultivars in Samoa have been made from time to time when farm visits were made. The maintenance of the taro cultivars involved frequent replanting, changes in location to reduce losses by pests and disease, and consistent and considerable care. Work began in April 1989 when eight cultivars were planted in three plots of 30 ft x 16 ft at spacings of 3 ft x 4 ft. Due to drought in August 1989, the eight cultivars were heavily affected. They were harvested, but no data was collected. The eight cultivars were *Niue, Manu'a, Matagifanua, Putemu, Sasapa'epa'e, Pulamumu, Faifaāusi,* and *Pueutu.*

In September/October 1989, 22 cultivars were planted in a plot of 30 ft x 84 ft. The spacing was 3 ft x 4 ft, and there were ten *tiapula* (planting sets) planted per cultivar. Planting was done by an *oso*. The total number of *tiapula* used was 220. Before planting, the site was tilled by a tractor using a rotary hoe. With a well-prepared seedbed, weeds were also suppressed. Weeding was done occasionally due to their fast growth and competition for nutrients. Cardboard was very effective in weed control and took time to decompose. A handful of fertilizer (12-5-20) was given to the plant at planting time, and two other dosages were administered at time intervals of two months at the same rate. Only a few cultivars showed slight resistance to armyworm and planthopper (*Niue, Manu'a,* 'Alafua Sunrise', *Talu uli*, and *Putemu*). The rest were susceptible. Cultivars that thrived best under low-

input conditions included *Niue, Manu'a, Putemu, Faifaausi, Fa'aeleele,* and 'Alafua Sunrise'. There were no varieties that survived the hurricane damage except for 'Alafua Sunrise', *Faifaausi, Manu'a, Putemu,* and *Niue* who tolerated drought. The cultivars were harvested in March 1990 due to Hurricane Ofa and data was collected on three areas: a) the number of cormels/mother plant; b) the number of stalks/petioles per mother plant; and c) the weight of the corm (Table 1).

Table 1. Phase 1. Average number of petioles, average number of cormels, and corm weight (lb) of taro cultivars at six months of age.

Cultivars	Average no. of petioles	Average no. of cormels	Corm weight
Niue	4	3	1.25
Pula paepae	5	6	1.25
Matagifanua	4	3	1.00
Manu'a	5	3	1.50
Patemu	3	2	1.00
Sasapaepae	5	4	0.50
Vaevaeula (red)	6	4	1.75
Vaevaeula (purple)	5	7	1.50
Pula mumu	5	7	1.00
Lauila	5	3	1.00
Talu uli	5	4	1.25
Talofiti	5	5	1.00
Pueutu	6	5	1.00
Pula tusitusi	4	7	1.25
Talo toga	3	4	1.00
Manu'a paepae	5	4	1.25
Fa'aeleele	5	7	1.25
Manu'a tusitusi	7	5	1.00
Faifa'ausi	5	15	1.00
Talo paepae	5	6	1.25
Pula viole	6	10	1.00
'Alafua Sunrise'	6	5	2.50

Table 2. Phase 2. Average number of petioles, average number of cormels, and corm weight (lb) of top seven high-yielding cultivars of taro at seven months of age.

Varieties	Average no. of petioles	Average no. of cormels	Corm weight
'Alafua Sunrise'	6	5	6.0
Vaevaeula (red)	6	4	3.9
Fa'aeleele	6	6	3.3
Vaevaeula (purple)	5	7	3.8
Manu'a tusitusi	6	5	3.2
Talo uli	5	4	3.9
Niue	4	4	2.0

Re-establishment of the 22 cultivars was done in May to November (1990), and the focus was on the yield. This second phase of the cultivar plot was repeated with the same procedures as in 1989 due to drought and Hurricane Ofa. Fallowing was done for only one month. The rate of fertilizer (Triple 16) remained the same. There was no tillage done. The duration of the plot was exactly seven months, and the result of the harvests revealed some high-yielding cultivars which were maintained, multiplied, and disseminated to farmers (planting materials) (Table 2).

Taro *Niue* was included due to its quality as favored by the Samoans. Perpetuation of the plot is still going on, but this time cultivars are intercropped by the cover crops mile-a-minute, bitter gourd, and *fuefuesina* (*Vigna tuteola*), a legume. They are replicated into three plots using the split plot design. Results will be reported after harvest.

The Editor

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