EFFECT OF BLACK PLASTIC MULCH ON YIELD OF DRYLAND TARO PRODUCTION

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Abstract

Seventeen cultivars were evaluated for dryland taro production under a black plastic mulch with irrigation. Within the cultivars, the development of *keikis* (off shoots) was erratic. Some mother plants were heavy producers of *keikis*, while others did not produce any. Closer observation indicated that the plastic mulch had inhibited the development of *keikis* and they could not penetrate the mulch, causing their death and thereby reducing the total yield of the taro plant.

Introduction

The use of black plastic mulch can affect yields in dryland taro production by inhibiting the growth of *keikis* (suckers). The developing *keikis* cannot penetrate the plastic mulch, and they eventually die from the lack of sunlight for proper development.

The primary objectives of using the black plastic mulch are for weed control and to maintain a moist soil in the production of dryland taro. The mulch eliminates the use of chemical herbicides. Maximum yields in dryland taro production require optimum soil moisture.

Materials and Methods

A variety taro trial is being conducted at the Low Elevation Extension Demonstration Farm in Kahului, Maui. The elevation of the site is about 25 feet. The farm is in an area which has high winds and is very dry. The farm was formally in sugar cane production. There are 17 varieties in this trial; 11 are named varieties and six are hybrids developed by Dr. Ramon de la Peña, agronomist at the Kaua'i Experiment Station of the University of Hawaiıi.

The *hulis* were planted in early February, 1992 in a black plastic mulch, 4 mils in thickness. Water is being delivered by a drip irrigation system, which was laid under the plastic mulch.

Fig. 1. Mother plants without *keikis*.

Results and Discussion

Three months after transplanting of the *hulis*, some of the mother plants within a variety did not have any *keikis* (Fig. 1). Our conclusion was that individual plant characteristics were involved, some being prolific in producing *keikis* while others were incapable of producing *keikis*. In June, we noticed that around the base of the mother plant there was a bulge in the plastic mulch. Upon tearing the plastic at the bulge, there were several *keikis*. Because the keikis could not penetrate the plastic mulch, many were dead or were dying. These *keikis* could have contributed to the total yield of the plant.

Conclusion

In the planting of taro in plastic mulch, one must be aware of the size of the *huli* (planting set) relative to the slit as it grows. There is no opening for the *keikis* to sprout out of the plastic mulch, and they cannot produce corm. Therefore, the slits made in the plastic mulch must be larger than the *hulis* to be planted, accounting for the development of the mother plant as well as for the development of the *keikis* at planting time. The slit could also be enlarged as the plant grows.

The Editor

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