

Taro Research and Genetic Engineering of Hawaiian Taro

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The College of Tropical Agriculture and Human Resources (CTAHR) at the University of Hawaii at Manoa has a long history of working with taro growers to improve taro varieties, increase disease resistance, and help solve their pressing production problems. Since 1902, serious fungal diseases have threatened the viability of commercial taro production in Hawaii (publication number 2 from the Agricultural Experiment Station dealt with this issue). Leaf blight has played a significant role in reducing taro diversity, as the number of named Hawaiian varieties has declined from over 400 in the early 1900s to fewer than 60 today. Soft corm rots and pocket rot often cause losses of 50 percent or more. In seeking solutions to these and other challenges faced by taro growers, the college has been open to assessing the effectiveness of all technologies and practices, including genetic engineering.

Some groups within the Hawaiian community have expressed concerns about the genetic engineering of Hawaiian taro varieties. One of our responsibilities as a land-grant institution is to be engaged with our many stakeholders, including Hawaiians and taro growers. Within this context, the university is working with Ali'i Sir William D. Souza of the Royal Order of Kamehameha I to develop a process that will balance the university's values relating to free inquiry and respect for indigenous knowledge, beliefs, and practices. One item of discussion is the creation of a forum to promote dialog on, for example, the types of Hawaiian taro research that will raise cultural concerns in the Hawaiian community. The organization and format of this forum/research review board, composed primarily of Native Hawaiians, are being discussed; we expect that it will be established sometime this summer.

We have encountered perceptions in the community that CTAHR's taro research focuses entirely on genetic engineering and that the college sells or gives away genetically engineered taro huli. These perceptions are incorrect. For more than a century, CTAHR has refined sustainable management practices and used classical breeding techniques to produce improved taro cultivars. This work continues to yield promising results. The college has also pursued two taro genetic engineering research projects. The first project sought to develop a method for introducing disease-resistant genes from rice into Chinese ('Bun Long'), Hawaiian ('Maui Lehua'), and Samoan ('Niue') taro varieties. The research was successful only with the Chinese taro variety. The second, current project seeks to incorporate into the Chinese taro variety other disease-resistance genes from grapevine and wheat for increased fungal disease resistance. This second project is still in the laboratory phase. No genetically engineered taro plants have been released or grown in the field. They are absolutely not being sold or donated to anyone.

The CTAHR scientists currently involved in genetic engineering research on taro have no plans to modify Hawaiian taro varieties. In keeping with our commitment to engage with our stakeholders and be sensitive to the cultural significance of taro, CTAHR will not initiate genetic engineering research on Hawaiian taro varieties until the forum/research review board to discuss the cultural aspects of this research is convened and all aspects of the research are discussed.



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