

---

---

## A BILL FOR AN ACT

RELATING TO TARO SECURITY.

**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

1           SECTION 1. Kalo, *Colocasia esculenta*, the Hawaiian word  
2 for taro, is a culturally significant plant to the kanaka maoli  
3 (Hawaii's indigenous peoples) and the State of Hawaii. Kalo  
4 intrinsically embodies the interdependency of the past, the  
5 present, and the future, the essence of procreation and  
6 regeneration, as the foundation of any sustainable practice.  
7 Kalo expresses the spiritual and physical well-being of not only  
8 the kanaka maoli and their heritage, but also symbolizes the  
9 environmental, social, and cultural values important to the  
10 State. This relationship is represented in the use of the kalo  
11 plant on the crown of King Kalakaua. The state seal,  
12 established in 1959, includes eight taro leaves below the  
13 shield, honoring the connection between the health of the land  
14 and the health of the state. Today, the logo of the office of  
15 Hawaiian affairs and many commercial enterprises throughout the  
16 state use this symbol to communicate ohana, integrity, and a  
17 connection to Hawaiian culture. The State of Hawaii further



1 recognized the cultural and historic significance of taro by  
2 designating it as the official state plant.

3 Over 300 kalo varieties may have existed at the time of the  
4 arrival of European explorers (Pukui and Elbert, Hawaiian  
5 Dictionary, 1986). Today, there are 85 known traditional  
6 varieties of taro remaining, including Bun-Long (Chinese) whose  
7 use in Hawaii dates back more than 150 years. Of these, 69 are  
8 unique to the Hawaiian islands due to the horticultural skills  
9 of native Hawaiian farmers (according to Bulletin 84: Taro  
10 Varieties in Hawaii, 1939). Some are extremely rare. The state  
11 is also a repository for many taro varieties from around the  
12 world. Leaf blight-resistant cultivars were developed from this  
13 resource using conventional hand-pollination methods to restore  
14 taro crops in Samoa in the 1990s. Protecting and maintaining  
15 the genetic identity of these varieties is critically important  
16 to the recovery of old taro varieties in Hawaii and the Pacific.

17 Kalo is an important food crop in Hawaii and a complex  
18 carbohydrate whose hypo-allergenic properties are life-saving  
19 for those with digestive disorders and allergies, including  
20 young children and the elderly. The health implications of non-  
21 taro genes in genetically engineered kalo have never been  
22 tested, nor have they been approved for human consumption.



1 Historically, there were thousands of acres under taro  
2 cultivation in Hawaii. Today, however, there remain less than  
3 500 acres of taro in production. In 2006, the most recent year  
4 for Hawaii Agriculture Statistic Services (HASS) market values,  
5 4,500,000 pounds were produced on 380 acres of commercial taro  
6 land (11,842 pounds per acre) at a value of \$2,565,000,000  
7 farmgate, amounting to an estimated per acre value of \$6,750,  
8 excluding lu'au leaf. Raw taro and value-added taro products  
9 represent a multi-million dollar crop in Hawaii with great  
10 potential for further growth as the State moves towards food  
11 security and self-sufficiency. Control of the single worst taro  
12 pest, the apple snail, *Pomacea canaliculata*, will increase taro  
13 production on existing acreage by as much as 25 per cent (Levin  
14 2006). Cold water and adjusting growing regimes will further  
15 reduce taro disease. Neither of these issues requires a  
16 genetically engineered taro solution. Most locally-grown taro  
17 is consumed within the state, indicating a highly specialized  
18 market. Millers and consumers have specifically and  
19 consistently rejected the use of genetically modified taro or  
20 poi.

21 The 2008 Legislature established the two-year taro security  
22 and purity task force under Act 211, Session Laws of Hawaii



1 to taro farmer issues, including land and water concerns,  
2 threats from pests, diseases and taro imports, educational  
3 opportunities, and economic issues. In the same year, the  
4 counties of Hawaii, Maui, and Kauai supported a moratorium on  
5 genetically-modified taro. In November of 2008, the county of  
6 Hawaii passed Ordinance 361 banning the testing, propagating,  
7 cultivating, raising, planting, growing, introduction or release  
8 of genetically modified taro on that island.

9 The purpose of this Act is to further protect:

10 (1) The cultural integrity of kalo as part of the heritage  
11 of the Hawaiian people and the state;

12 (2) The genetic biodiversity and integrity of all  
13 traditional taro varieties in the state as part of the  
14 sacred trust between the State and the indigenous  
15 peoples of the Pacific; and

16 (3) Hawaii taro farmers' raw taro, poi, lu'au, and value-  
17 added markets,

18 by establishing a ban on developing, testing, propagating,  
19 releasing, importing, planting, and growing of genetically  
20 modified taro in the State of Hawaii.



1 SECTION 2. The Hawaii Revised Statutes is amended by  
2 adding a new chapter to be appropriately designated and to read  
3 as follows:

4 "CHAPTER

5 GENETICALLY MODIFIED TARO

6 § -1 Definitions. As used in this chapter:

7 "Genetically modified" means alterations to a life form or  
8 its living progeny at the nucleic acid level, using the  
9 techniques collectively referred to as recombinant DNA  
10 technology.

11 "Recombinant DNA technology" means the transfer of genes,  
12 regulatory sequences, or nucleic acid between hosts by the use  
13 of vectors or laboratory manipulations and includes the  
14 insertion, excision, duplication, inactivation, or relocation of  
15 specific genes, regulatory sequences, or sections of nucleic  
16 acid. This term does not apply to a material or an organism  
17 developed exclusively through traditional methods of breeding,  
18 hybridization, or nondirected mutagenesis.

19 "Release" means a discharge, emission, or liberation of  
20 any genetically engineered organisms, or the product of a  
21 genetically engineered organism, into the open environment.

22 "Transgenic" means "genetically modified."



1           §       -2   **Genetically modified taro; prohibited.**   No  
 2   genetically modified taro shall be developed, tested,  
 3   propagated, released, imported, planted, or grown in the State  
 4   of Hawaii."

5           SECTION 3. This Act shall not serve as a referendum on the  
 6   merits of biotechnology nor be applicable to any other crop.  
 7   Nothing in this Act shall be construed to prohibit the use of  
 8   controlled hand-pollination taro breeding methods (taro-to-taro)  
 9   to improve taro as a crop.

10          SECTION 4. This Act shall take effect on July 1, 2009.

11

INTRODUCED BY:

Mele Carroll

Raymond Hanover

Mark

[Signature]

Tom Brown

Scott C. Am

Wynn Drouin

[Signature]

Della A. Belatti

Karen Brown

[Signature]

[Signature]

Danny Coffey

JAN 28 2009



**Report Title:**

Genetically Modified Taro; Prohibition

**Description:**

Prohibits the development, testing, propagation, release, importation, planting, or growing of genetically modified taro in the State of Hawaii.

