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# 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 three hundred kalo varieties may have existed at the  
4 time of the arrival of European explorers (Pukui and Elbert,  
5 Hawaiian Dictionary, 1986). Of these, sixty-nine are unique to  
6 the Hawaiian islands due to the horticultural skills of native  
7 Hawaiian farmers (according to Bulletin 84: Taro Varieties in  
8 Hawaii, 1939). Some are extremely rare. Protecting and  
9 maintaining the genetic identity of these varieties is  
10 critically important to the recovery of old taro varieties in  
11 Hawaii.

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

18 Historically, there were thousands of acres under taro  
19 cultivation in Hawaii. Today, however, there remain less than  
20 five hundred acres of taro in production. In 2006, the most  
21 recent year for Hawaii Agriculture Statistic Services market  
22 values, 4,500,000 pounds were produced on three hundred eighty



1 acres of commercial taro land (11,842 pounds per acre) at a farm  
2 gate value of \$2,565,000, amounting to an estimated per acre  
3 value of \$6,750, excluding lu'au leaf. Raw taro and value-added  
4 taro products represent a multi-million dollar crop in Hawaii  
5 with great potential for further growth as the State moves  
6 towards food security and self-sufficiency. Control of the  
7 single worst taro pest, the apple snail, *Pomacea canaliculata*,  
8 will increase taro production on existing acreage by as much as  
9 twenty-five per cent (Levin 2006). Cold water and adjusting  
10 growing regimes will further reduce taro disease. Neither of  
11 these issues requires a genetically engineered taro solution.  
12 Most locally-grown taro is consumed within the State, indicating  
13 a highly specialized market. Millers and consumers have  
14 specifically and consistently rejected the use of genetically  
15 modified taro or poi.

16 The 2008 legislature established the two-year taro security  
17 and purity task force under Act 211, Session Laws of Hawaii  
18 2008, to address non genetically-modified-organism alternatives  
19 to taro farmer issues, including land and water concerns,  
20 threats from pests, diseases and taro imports, educational  
21 opportunities, and economic issues. In November of 2008, the  
22 county of Hawaii passed Ordinance No. 361 banning the testing,



1 propagating, cultivating, raising, planting, growing,  
2 introduction, or release of genetically modified taro on that  
3 island.

4 The purpose of this Act is to further protect:

5 (1) The cultural integrity of kalo as part of the heritage  
6 of the Hawaiian people and the State;

7 (2) The genetic biodiversity and integrity of Hawaiian  
8 taro varieties in the State as part of the sacred  
9 trust between the State and the indigenous peoples of  
10 Hawaii; and

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

13 by establishing a ban on developing, testing, propagating,  
14 releasing, importing, planting, and growing of genetically  
15 modified Hawaiian taro in the State of Hawaii.

16 Because proponents of the ban have expressed concern about  
17 the possibility of cross-pollination of Hawaiian taro with  
18 genetically modified non-Hawaiian taro, this Act also  
19 establishes additional prohibitions on the conduct of certain  
20 activities relating to genetically modified non-Hawaiian taro.



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 "Hawaiian taro" means the following varieties of  
12 taro: aweu, mana ula, mana opelu, mana weo, mana ulaula, mana  
13 lauloa, mana keokeo, mana kukuluhema, piko lehua-apei, piko  
14 ulaula, piko kea, piko keokeo, piko uaua, piko uliuli, piko  
15 eleele, elepaio, uahiapele, manapiko, kai uliuli, kai ala, kai  
16 kea, apuwai, apu, pialii, paakai, moana, lauloa eleele-omao,  
17 lauloa eleele-ula, lauloa palakea-eleele, lauloa palakea-ula,  
18 lauloa palakea-papamu, lauloa palakea-keokeo, lauloa keokeo,  
19 eleele makoko, eleele naioea, manini-owali, kumu-eleele, nawao,  
20 ulaula kumu, ulaula poni, ulaula moano, oopukai, manini uliuli,  
21 manini kea, papakolea-koae, ula, nihopuu, manini-opelu,  
22 hinupuaa, ohe, lehua maoli, lehua keokeo, lehua eleele, lehua



1 palaii, apowale, wehiwa, papapueo, kuoho, leo, maea, haokea,  
2 kalalau, hapuu, laaloo, lauloo uliuli, lihilihimolina, mana  
3 eleele, mana okoa, moi, oene, pikoele, pololu, Maui lehua, and  
4 red moi.

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

13 "Release" means a discharge, emission, or liberation of any  
14 genetically engineered organisms, or the product of a  
15 genetically engineered organism, into the open environment.

16 "Transgenic" means "genetically modified."

17 **§ -2 Genetically modified Hawaiian taro; prohibited.** No  
18 genetically modified Hawaiian taro shall be developed, tested,  
19 propagated, released, imported, planted, or grown in the State  
20 of Hawaii.

21 **§ -3 Genetically modified non-Hawaiian taro; certain**  
22 **prohibitions.** (a) No non-Hawaiian taro shall be genetically



1 modified outside an enclosed laboratory. No genetic  
2 modification of non-Hawaiian taro shall be allowed inside an  
3 enclosed laboratory, unless entry into the enclosed laboratory  
4 is prohibited to the general public.

5 (b) No genetically modified non-Hawaiian taro shall be  
6 tested, propagated, planted, or grown outside an enclosed  
7 structure. No genetically modified non-Hawaiian taro shall be  
8 tested, propagated, planted, or grown inside an enclosed  
9 structure, unless entry into the enclosed structure is  
10 prohibited to the general public.

11 **§ -4 Penalty.** Any person who violates this chapter  
12 shall be guilty of a petty misdemeanor."

13 SECTION 3. This Act shall not serve as a referendum on the  
14 merits of biotechnology nor be applicable to any other crop.  
15 Nothing in this Act shall be construed to prohibit the use of  
16 controlled hand-pollination taro breeding methods (taro-to-taro)  
17 to improve Hawaiian taro as a crop.

18 SECTION 4. This Act shall take effect on July 1, 2050.



**Report Title:**

Genetically Modified Taro; Prohibition

**Description:**

Prohibits the development, testing, propagation, release, importation, planting, or growing of genetically modified Hawaiian taro in the state. Prohibits certain activities related to genetically modified non-Hawaiian taro. (HB1663 HD1)

