
A BILL FOR AN ACT

RELATING TO TARO SECURITY.

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

1 SECTION 1. Kalo, the Hawaiian word for taro (*Colocasia*
2 *esculenta*), is a culturally significant plant to the kanaka
3 maoli (Hawaii's indigenous peoples) and the State of Hawaii.
4 Kalo 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, adopted in
12 1959, includes eight taro leaves below the shield, honoring the
13 connection between the health of the land and the health of the
14 state. Today, the logo of the office of Hawaiian affairs and
15 many commercial enterprises throughout the state use this symbol
16 to communicate ohana, integrity, and a connection to Hawaiian
17 culture. The State of Hawaii further recognized the cultural

1 and historic significance of taro by designating it as the
2 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 varieties are
6 unique to the Hawaiian islands due to the horticultural skills
7 of native Hawaiian farmers (according to *Bulletin 84: Taro*
8 *Varieties in Hawaii*, 1939). Some varieties are extremely rare.
9 Protecting and maintaining the genetic identity of these
10 varieties is critically important to the recovery of old taro
11 varieties in Hawaii.

12 Kalo is an important food crop in Hawaii and a complex
13 carbohydrate the hypo-allergenic properties of which are life-
14 saving for those with digestive disorders and allergies,
15 including young children and the elderly. The health
16 implications of non-taro genes in genetically engineered kalo
17 have never been tested, nor have they been approved for human
18 consumption. Historically, there were thousands of acres under
19 taro cultivation in Hawaii. Today, however, there remain less
20 than five hundred acres of taro in production. In 2007, the
21 most recent year for the National Agricultural Statistics
22 Service market values, 4,000,000 pounds were produced on three

1 hundred eighty acres of commercial taro land (10,526 pounds per
2 acre) at a farm gate value of \$2,360,000, amounting to an
3 estimated per acre value of \$6,210, excluding luau leaf. Raw
4 taro and value-added taro products represent a multi-million
5 dollar crop in Hawaii with great potential for further growth as
6 the State moves towards food security and self-sufficiency.
7 Control of the single worst taro pest, the apple snail (*Pomacea*
8 *canaliculata*), will increase taro production on existing acreage
9 by as much as twenty-five per cent (Levin 2006). Cold water and
10 adjusting growing regimes will further reduce taro disease.
11 Neither of these issues requires a genetically engineered taro
12 solution. Most locally-grown taro is consumed within the State,
13 indicating a highly specialized market. Millers and consumers
14 have specifically and consistently rejected the use of
15 genetically 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 Bill 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, luau, 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 the
17 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.

21 SECTION 2. The Hawaii Revised Statutes is amended by

1 adding a new chapter to be appropriately designated and to read
2 as follows:

3 **"CHAPTER**

4 **GENETICALLY ENGINEERED TARO**

5 § -1 **Definitions.** As used in this chapter:

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

10 "Hawaiian taro" means taro species that are unique to
11 Hawaii, as listed in *Bulletin 84: Taro Varieties in Hawaii,*
12 *1939.*

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

1 "Release" means a discharge, emission, or liberation of any
2 genetically engineered organisms, or the product of a
3 genetically engineered organism, into the open environment.

4 § -2 **Genetically engineered Hawaiian taro; prohibited.**

5 No genetically engineered Hawaiian taro shall be developed,
6 tested, propagated, released, imported, planted, or grown in the
7 State of Hawaii.

8 § -3 **Genetically engineered non-Hawaiian taro; certain**

9 **prohibitions.** (a) No non-Hawaiian taro, to wit, those
10 varieties that are not unique to Hawaii, including, but not
11 limited to, the Chinese taro (Bun long) and araimo varieties,
12 shall be genetically engineered outside an enclosed laboratory.
13 No genetic engineering of non-Hawaiian taro shall be allowed
14 inside an enclosed laboratory, unless entry into the enclosed
15 laboratory is prohibited to the general public.

16 (b) No genetically engineered non-Hawaiian taro shall be
17 tested, propagated, planted, or grown outside an enclosed
18 structure. No genetically engineered non-Hawaiian taro shall be
19 tested, propagated, planted, or grown inside an enclosed
20 structure, unless entry into the enclosed structure is
21 prohibited to the general public.

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

6 SECTION 4. This Act shall take effect on July 1, 2009;
7 provided that this Act shall be repealed on June 30, 2014.

Report Title:

Genetically Engineered Taro; Prohibition

Description:

Prohibits the development, testing, propagation, release, importation, planting, or growing of genetically engineered Hawaiian taro in the State of Hawaii. Non-Hawaiian taro shall not be genetically engineered outside an enclosed laboratory or inside an enclosed laboratory unless access is restricted to the general public, and shall not be tested, propagated, planted, or grown outside an enclosed structure or inside an enclosed structure unless access is restricted to the general public.

(SD2)