
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. Kalo not only expresses the spiritual and
7 physical well-being of the kanaka maoli and their heritage but
8 also symbolizes the environmental, social, and cultural values
9 important to the State. This relationship is represented in the
10 use of the kalo plant on the crown of King Kalakaua. The state
11 seal, adopted in 1959, includes eight taro leaves below the
12 shield, honoring the connection between the health of the land
13 and the health of the State. Today, the logos of the office of
14 Hawaiian affairs and many commercial enterprises throughout the
15 State use this symbol to communicate ohana, integrity, and a
16 connection to Hawaiian culture. The State of Hawaii further
17 recognized the cultural and historic significance of taro by
18 designating it as the official state plant.



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

10 Kalo is an important food crop in Hawaii and a complex
11 carbohydrate the hypo-allergenic properties of which are life-
12 saving for those with digestive disorders and allergies,
13 including young children and the elderly. The health
14 implications of non-taro genes in genetically engineered kalo
15 have never been tested, nor have they been approved for human
16 consumption. Historically, there were thousands of acres under
17 taro cultivation in Hawaii. Today, however, there remain less
18 than five hundred acres of taro in production. In 2011,
19 according to the National Agricultural Statistics Service market
20 values, 4,100,000 pounds were produced on four hundred eighty
21 five acres of commercial taro land (8,453 pounds per acre) at a
22 farm gate value of \$2,747,000, amounting to an estimated per



1 acre value of \$5,664, excluding luau leaf. Raw taro and value-
2 added taro products represent a multi-million-dollar crop in
3 Hawaii with great potential for further growth as the State
4 moves towards food security and self-sufficiency. Control of
5 the single worst taro pest, the apple snail (*Pomacea*
6 *canaliculata*), will increase taro production on existing acreage
7 by as much as twenty-five per cent (Levin 2006). Using cold
8 water and adjusting growing regimes will further reduce taro
9 disease. Neither of these issues requires a genetically
10 engineered taro solution. Most locally-grown taro is consumed
11 within the State, indicating a highly specialized market.
12 Millers and consumers have specifically and consistently
13 rejected the use of genetically modified taro or poi.

14 The legislature established the two-year taro security and
15 purity task force under Act 211, Session Laws of Hawaii 2008, to
16 address non-genetically modified organism alternatives to taro
17 farmer issues, including land and water concerns, threats from
18 pests, diseases and taro imports, educational opportunities, and
19 economic issues. In November of 2008, the county of Hawaii
20 passed Bill No. 361 banning the testing, propagating,
21 cultivating, raising, planting, growing, introduction, or
22 release of genetically modified taro on that island.



- 1 The purpose of this Act is to further protect:
- 2 (1) The cultural integrity of kalo as part of the heritage
- 3 of the Hawaiian people and the State;
- 4 (2) The genetic biodiversity and integrity of Hawaiian
- 5 taro varieties in the State as part of the sacred
- 6 trust between the State and the indigenous peoples of
- 7 Hawaii; and
- 8 (3) Hawaii taro farmers' raw taro, poi, luau, and value-
- 9 added markets,

10 by establishing a ban on developing, testing, propagating,

11 releasing, importing, planting, and growing of genetically

12 modified Hawaiian taro in the State of Hawaii.

13 Because proponents of the ban have expressed concern about the

14 possibility of cross-pollination of Hawaiian taro with

15 genetically modified non-Hawaiian taro, this Act also

16 establishes additional prohibitions on the conduct of certain

17 activities relating to genetically modified non-Hawaiian taro.

18 SECTION 2. The Hawaii Revised Statutes is amended by

19 adding a new chapter to be appropriately designated and to read

20 as follows:



1 "CHAPTER

2 GENETICALLY ENGINEERED TARO

3 § -1 Definitions. As used in this chapter:

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

8 "Hawaiian taro" means taro species that are native to
9 Hawaii, as listed in *Bulletin 84: Taro Varieties in Hawaii,*
10 *1939.*

11 "Non-Hawaiian taro" means those taro varieties that are not
12 native to Hawaii, including the Chinese taro (Bun long) and
13 araimo varieties.

14 "Recombinant DNA technology" means the transfer of genes,
15 regulatory sequences, or nucleic acid between hosts by the use
16 of vectors or laboratory manipulations and includes the
17 insertion, excision, duplication, inactivation, or relocation of
18 specific genes, regulatory sequences, or sections of nucleic
19 acid. This term does not apply to a material or an organism
20 developed exclusively through traditional methods of breeding,
21 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 shall be genetically
10 engineered outside an enclosed laboratory. No genetic
11 engineering of non-Hawaiian taro shall be allowed inside an
12 enclosed laboratory, unless entry into the enclosed laboratory
13 is prohibited to the general public.

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

20 **§ -4 Hand-pollination.** Nothing in this chapter shall be
21 construed to prohibit the use of controlled hand-pollination
22 taro breeding methods (taro-to-taro) to improve taro as a crop."



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 SECTION 4. This Act shall take effect on July 1, 2013;
4 provided that this Act shall be repealed on June 30, 2018.

5

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JAN 22 2013



H.B. NO. 735

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. Establishes limited prohibitions on the engineering, testing, and cultivation of non-Hawaiian taro in the State. Effective July 1, 2013, and repeals on June 30, 2018.

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