

Layer Name: Agricultural Lands of Importance to the State of Hawaii

File Name: ALISH

Layer Type: Polygon

Status: Complete

Geog. Extent: Main Hawaiian Islands

Projection: Universal Trans Mercator, Zone 4

Datum: NAD 83 HARN

Description: Agricultural Lands of Importance to the State of Hawaii for islands of Kauai, Oahu, Maui, Molokai, Lanai & Hawaii.

Source: State Department of Agriculture 1:24,000 hand drafted blue-line maps; compiled and drafted in 1977. Prepared with the assistance of the Soil Conservation Service, U.S. Department of Agriculture, and the College of Tropical Agriculture, University of Hawaii. See text below for information about the classification system, including criteria for classification.

History: Digitized in Arc/Info version 6 using ArcEdit by the Office of State Planning (OSP) from State Department of Agriculture's 1:24,000 blue-line maps.

Attributes: Polygons:

AREA	area of polygon (sq. meters)
PERIMETER	perimeter of polygon (meters)
ALISH#	Polygon internal number (for Arc/Info use)
ALISH-ID	Polygon ID (for Arc/Info use)
AGTYPE	Agricultural Type
AGTYPE	Definition
<blank>	Unclassified
0	Unclassified
1	Prime Lands
2	Unique Lands
3	Other Lands

**Notes: (from "Agricultural Lands of Importance to the State of Hawaii Revised," State Department of Agriculture, November, 1977).**

The Classification System:

The classification system for identification of agriculturally important lands in the State of Hawaii provides for the:

1. Establishment of classes of agricultural lands primarily, but not exclusively, on the basis of soil characteristics;

2. Establishment of criteria for classification of lands; and
3. Identification of lands which meet the criteria for the respective classes.

Three classes of agriculturally important lands were established for the State of Hawaii with the intent of facilitating the SCS effort to inventory prime farmlands nationally and adapting the classification to the types of agricultural activity in Hawaii. These classes and their corresponding SCS (national) equivalents are:

<b>Hawaii Classification System</b>	<b>SCS Classification System</b>
Prime Agricultural Land	Prime Farmland
Unique Agricultural Land	Unique Farmland
Other Important Agricultural Land	Additional Farmland of Statewide and Local Importance

The criteria for classification of PRIME AGRICULTURAL LAND are identical to the criteria established by SCS for national application. The criteria for UNIQUE AGRICULTURAL LAND and OTHER IMPORTANT AGRICULTURAL LAND were established cooperatively by the Soil Conservation Service in Hawaii, the College of Tropical Agriculture, and the State Department of Agriculture.

Land considered for classification may or may not currently be in agricultural use, or may be in an agricultural use other than that which its classification may indicate as its agricultural capability. An example of the latter situation is land currently being used for grazing but which meets the criteria for Prime Agricultural Land. Lands not considered for classification as agricultural lands of importance to the State of Hawaii are:

1. Developed urban land over 10 acres;
2. Natural or artificial enclosed bodies of water over 10 acres;
3. Forest reserves;
4. Public use (parks and historic sites) lands;
5. Lands with slopes in excess of 35%; and
6. Military installations, except undeveloped areas over 10 acres.

The classification of agriculturally important lands does not in itself constitute a designation of any area to a specific land use. The classification should, however, provide decision makers with an awareness of the long-term implications of various land use options for production of food, feed, forage, and fiber crops in Hawaii.

Over time new areas may be developed for agricultural uses, other areas may be converted to irreversible non-agricultural uses, and new knowledge may be gained regarding soil interpretations. These and other developments will necessitate the periodic review and revision of the classification system and lands identified for the various classes.

The Criteria for Classification:

### **PRIME AGRICULTURAL LAND**

PRIME AGRICULTURAL LAND is land best suited for the production of food, feed, forage and fiber crops. The land has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern farming methods.

PRIME AGRICULTURAL LAND meets the following criteria:

1. The soils have an adequate moisture supply. Included are:
  - a. Soils having aquic or udic moisture regimes. (For definitions of moisture regimes see Soil Taxonomy, Agricultural Handbook 436, December 1975). These soils commonly are in humid or subhumid climates that have well distributed rainfall or have enough rain in the summer that the amount of stored moisture plus rainfall is approximately equal to or exceeds the amount of potential evapotranspiration. Water moves through the soils at some time in most years.
  - b. Soils having xeric or ustic moisture regimes and in which the available water capacity is great enough to provide adequate moisture for the commonly grown crops in 7 or more years out of 10.
  - c. Soils having aridic or torric moisture regimes and the area has a developed irrigation water supply that is dependable and of adequate quality. Also included are soils having xeric or ustic moisture regimes in which the available water capacity is limited but the area has a developed irrigation water supply that is dependable and of adequate quality.
  - d. Soils having sufficient available water capacity within a depth of 40 inches (1 meter), or in the root zone if the root zone is less than 40 inches deep, to produce the commonly grown crops in 7 or more out of 10 years.  
  
A dependable water supply is one in which enough water is available for irrigation in 8 out of 10 years for the crops commonly grown.
2. The soils have a soil temperature regime that is isomesic, isothermic, or isohyperthermic. These are soils that, at a depth of 20 inches (50 cm), have a mean annual temperature higher than 47 degrees F (8 degrees C), and the difference between the mean summer and mean winter temperature differ by less than 9.0 degrees F (5 degrees C).
3. The soils have a pH between 4.5 and 8.4 in all horizons within a depth of 40 inches (1 meter) or in the root zone if the root zone

is less than 40 inches deep. (Soils which have a pH of less than 4.5 in surface soil because of use of fertilizers are excluded). This range of pH is favorable for growing a wide variety of crops without adding large amounts of amendments.

4. The soils have no water table or a water table that is maintained at a sufficient depth during the cropping season to allow crops common to the area to be grown.
5. The soils can be managed so that in all horizons within a depth of 40 inches (1 meter) or in the root zone if the root zone is less than 40 inches deep, during part of each year the conductivity of saturation extract is less than 4 mmhos/cm and the exchangeable sodium percentage (ESP) is less than 15.
6. The soils are not flooded frequently during the growing season (less often than once in 2 years).
7. The soils have a product of K (erodability factor) x percent slope of less than 2.0. That is, soils having a serious erosion hazard are not included.
8. The soils have a permeability rate of at least 0.06 inches (0.15 cm) per hour in the upper 20 inches (50 cm) and the mean annual soil temperature at a depth of 20 inches is less than 57 degrees F (14 degrees C). Permeability rate is not a limiting factor if the mean annual soil temperature is 57 degrees F (14 degrees C) or higher.
9. Less than 10 percent of the surface layer in these soils consists of rock fragments coarser than 3 inches (7.6 cm). These soils present no particular difficulty in cultivating with large equipment.
10. Must not be thixotropic and have isomesic temperature regime.

### **UNIQUE AGRICULTURAL LAND**

UNIQUE AGRICULTURAL LAND is land other than PRIME AGRICULTURAL LAND and is used for the production of specific high-value food crops. The land has the special combination of soil quality, growing season, temperature, humidity, sunlight, air drainage, elevation, aspect, moisture supply, or other conditions, such as nearness to market, that favor the production of a specific crop of high quality and/or high yield when the land is treated and managed according to modern farming methods. In Hawaii, some examples of such crops are coffee, taro, rice, watercress and non-irrigated pineapple.

Land that qualifies as PRIME AGRICULTURAL LAND and is used for a specific high-value crop is classified as PRIME AGRICULTURAL LAND rather than as UNIQUE AGRICULTURAL LAND.

## **OTHER IMPORTANT AGRICULTURAL LAND**

OTHER IMPORTANT AGRICULTURAL LAND is land other than PRIME or UNIQUE AGRICULTURAL LAND that is of state-wide or local importance for the production of food, feed, fiber and forage crops. The lands in this classification are important to agriculture in Hawaii yet they exhibit properties, such as seasonal wetness, erodibility, limited rooting zone, slope, flooding, or droughtiness, that exclude them from the PRIME or UNIQUE AGRICULTURAL LAND classifications. Two examples are lands which do not have an adequate moisture supply to qualify as PRIME AGRICULTURAL LAND and lands which have similar characteristics and properties as UNIQUE AGRICULTURAL LAND except that the land is not currently in use for the production of a "unique" crop. These lands can be farmed satisfactorily by applying greater inputs of fertilizer and other soil amendments, drainage improvement, erosion control practices, flood protection and produce fair to good crop yields when managed properly.

Other criteria which may qualify lands as OTHER IMPORTANT AGRICULTURAL LAND are:

1. The land has slopes less than 20%, is presently in crop or has cropping potential, and is not classified as PRIME or UNIQUE AGRICULTURAL LAND. The soils have a moisture supply which is adequate for the commonly grown crop.
2. The land has slopes less than 35%, is presently used for grazing or has grazing potential, and is not classified as PRIME or UNIQUE AGRICULTURAL LAND. The soils have:
  - a. An aquic, udic, xeric, or ustic moisture regime in which the available water capacity is sufficient to produce fair to good yields of adapted forage.
  - b. Less than 10% rock outcrops and coarse fragments coarser than 3 inches (7.6 cm) in the surface layer.
3. The soils are thin organic soils underlain by aa lava (typic tropofolists) having aquic, udic, xeric, or ustic moisture regimes and isohyperthermic (greater than 72 degrees F) or isothermic (59 - 72 degrees F) soil temperature regimes.

Note: Also see report found at:

<https://scholarspace.manoa.hawaii.edu/bitstream/10125/53681/1/CtahrpsCoopExtCirc4961979.pdf>

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