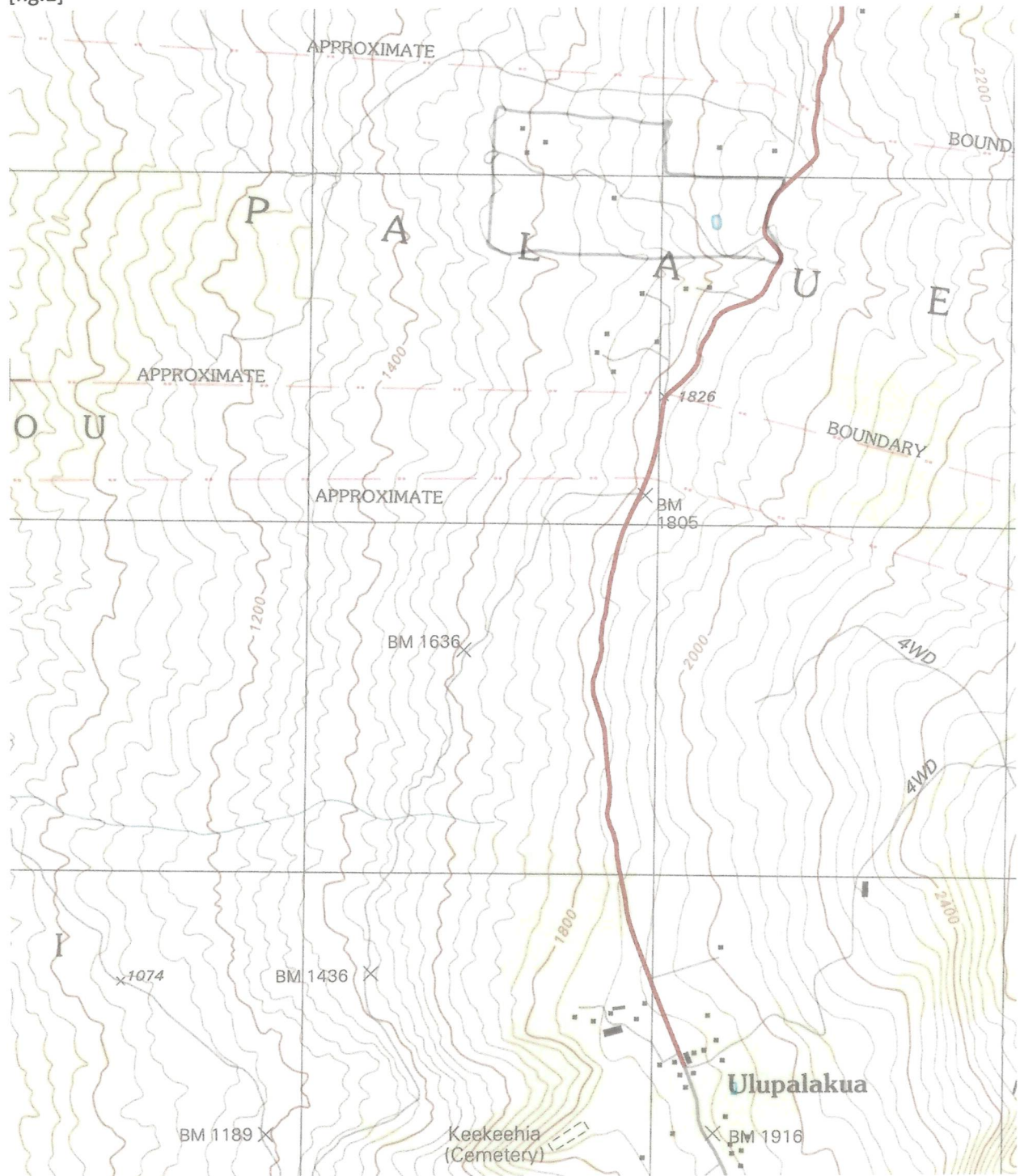


Figures

[fig.1]



<http://evols.library.manoa.hawaii.edu/handle/10524/55415>

[fig.2]



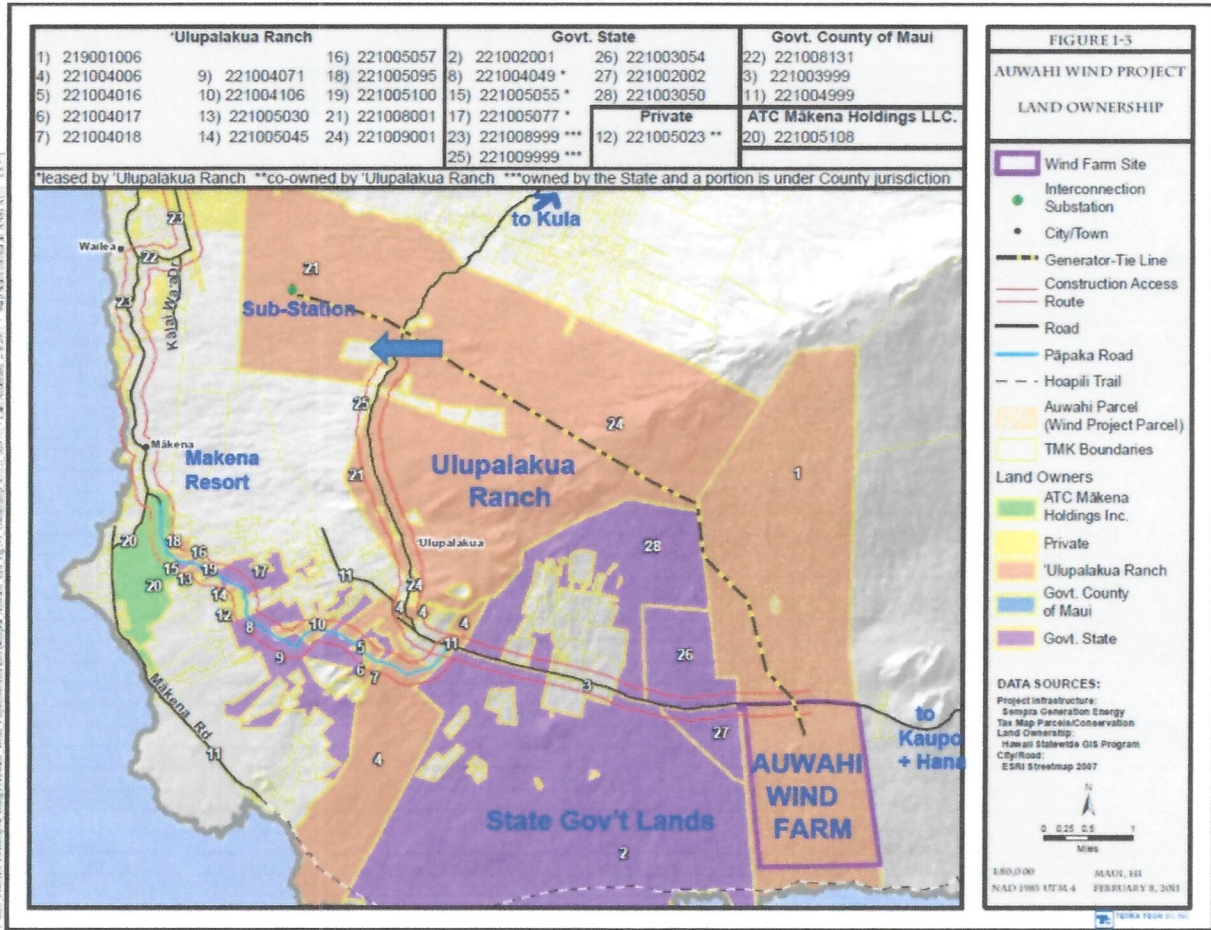
Soil Map—Island of Maui, Hawaii

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ISD	lo silt loam, 7 to 25 percent slopes	14.1	20.2%
KxD	Kula loam, 12 to 20 percent slopes	56.0	79.8%
Totals for Area of Interest		70.2	100.0%

MAP LEGEND		MAP INFORMATION	
Area of Interest (AOI)	Area of Interest (AOI)	Spoil Area	<p>The soil surveys that comprise your AOI were mapped at 1:24,000.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Warning: Soil Map may not be valid at this scale.</p> <p>Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</p> </div>
Soils	<ul style="list-style-type: none"> Soil Map Unit Polygons Soil Map Unit Lines Soil Map Unit Points 	<ul style="list-style-type: none"> Stony Spot Very Stony Spot Wet Spot Other Special Line Features 	
Special Point Features	<ul style="list-style-type: none"> Blowout Borrow Pit Clay Spot Closed Depression Gravel Pit Gravelly Spot Landfill Lava Flow Marsh or swamp Mine or Quarry Miscellaneous Water Perennial Water Rock Outcrop Saline Spot Sandy Spot Severely Eroded Spot Sinkhole Slide or Slip Sodic Spot 	Water Features <ul style="list-style-type: none"> Streams and Canals Transportation <ul style="list-style-type: none"> Rails Interstate Highways US Routes Major Roads Local Roads Background <ul style="list-style-type: none"> Aerial Photography 	
		<p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Island of Maui, Hawaii Survey Area Data: Version 15, Oct 3, 2017</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Dec 31, 2009—Feb 14, 2017</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>	

[fig.3]



Proposed AVA location marked by

http://maui-communities.weebly.com/uploads/5/6/3/9/5639079/9178973_orig.jpg

Figure 4

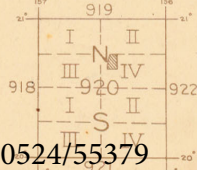
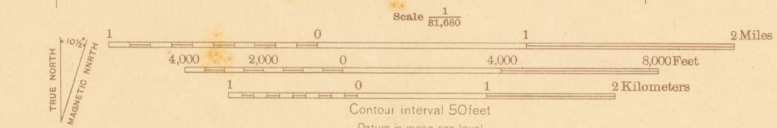
DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY

920-N-IV-W/2
TERRITORY OF HAWAII
WALLACE R. FARRINGTON, GOVERNOR
C. T. BAILEY, COMMISSIONER OF PUBLIC LANDS

HAWAII
ISLAND AND COUNTY OF MAUI
ULUPALAKUA QUADRANGLE



Topography by R.R. Menbeck and T.F. Murphy
Control in part by Hawaiian Territorial Survey
U. S. Coast and Geodetic Survey
Revised in 1924



Polygonic projection, Hawaiian datum
5000 yard grid based upon U. S. zone system
but with central meridian 155°

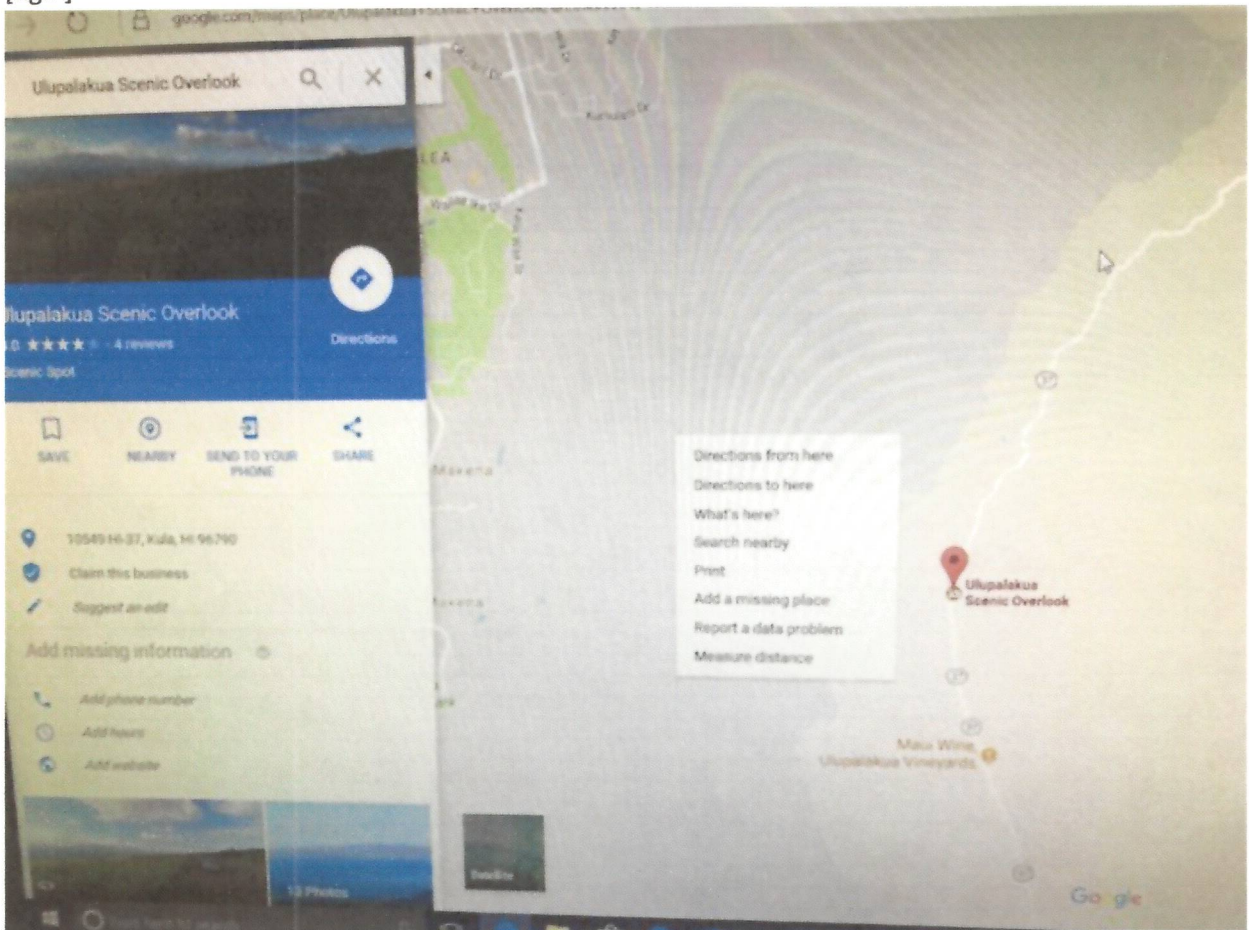
ULUPALAKUA, HAWAII

[fig.6]



Photo taken by Mark Beaman

[fig.7]



<https://www.google.com/maps/place/Ulupalakua+Scenic+Overlook/@20.6570901,-156.407915,14.84z/data=!4m5!3m4!1s0x7954c4e9aa38e8b5:0xd6873d5f46fd954a!8m2!3d20.6598527!4d-156.4004898>

[fig.8]



A & L WESTERN AGRICULTURAL LABORATORIES

1311 WOODLAND AVE #1 • MODESTO, CALIFORNIA 95351 • (209) 529-4080 • FAX (209) 529-4736



REPORT NUMBER: 16-106-044

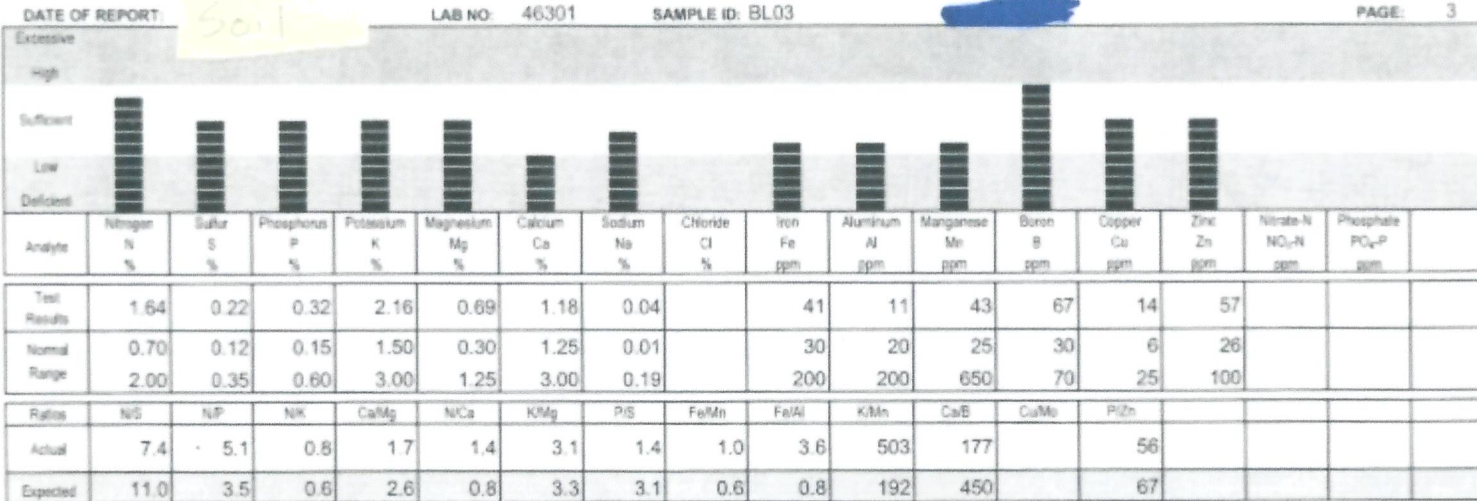
CLIENT NO: 99999

SEND TO: Kula Soil

GROWER:

SUBMITTED BY: [Redacted]

Graphical Plant Analysis Report



DATE SAMPLED: /

GROWTH STAGE / PLANT PART: BLM/P

C INVESTIGATE cause of imbalances before taking corrective measures. **GROWTH STAGE** and **PLANT PART** will have a large impact on results. View ratios with caution.
E NOTE that N, P, K, Zn, Cu and S levels may be naturally higher earlier on in the growing season, whereas Ca, Mg, Fe, Al, Mn, S, Na, and Cl may be lower.

DEFINITION OF INTERPRETATION RATINGS

Deficient: Plants should be showing visible symptoms of a nutritional deficiency. Plant growth would definitely be curtailed by an insufficient amount of this element.
Low: Plants may be normal in appearance but probably will be responsive to fertilization with this element.
Sufficient: Plants contain adequate amounts of this element for maximum yield and are normal in appearance.
High: Optimum yields can be expected and plants are normal in appearance. However, concentrations of the element are higher than normally expected.
Excessive: Plants probably show symptoms of a nutritional disorder or stunted growth. Yields may be reduced significantly by an excessive amount of this element.

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Phoebe Gordon, PhD
 Phoebe Gordon, PhD
 A & L WESTERN LABORATORIES, INC.

[fig.9]

Kula soil analysis taken from 4/19/16

A & L WESTERN AGRICULTURAL LABORATORIES

1311 WOODLAND AVE #1 • MODESTO, CALIFORNIA 95351 • (209) 529-4080 • FAX (209) 529-4736



REPORT NUMBER:

CLIENT NO: 99999

SEND TO:

Io Soil

GROWER:

SUBMITTED BY:

Graphical Plant Analysis Report

DATE OF REPORT: 4/19/16 LAB NO: 46299 SAMPLE ID: BL01 PAGE 1

Analyte	Nitrogen N %	Sulfur S %	Phosphorus P %	Potassium K %	Magnesium Mg %	Calcium Ca %	Sodium Na %	Chloride Cl %	Iron Fe ppm	Aluminum Al ppm	Manganese Mn ppm	Boron B ppm	Copper Cu ppm	Zinc Zn ppm	Nitrate-N NO ₃ -N ppm	Phosphate PO ₄ -P ppm
Test Results	1.71	0.31	0.27	1.36	1.06	1.22	0.06		51	17	52	63	17	77		
Normal Range	0.70	0.12	0.15	1.50	0.30	1.25	0.01		30	20	25	30	6	26		
Expected	2.00	0.35	0.60	3.00	1.25	3.00	0.19		200	200	650	70	25	100		

Ratios	N/S	N/P	N/K	Ca/Mg	N/Ca	K/Mg	P/S	Fe/Mn	Fe/Al	K/Mn	Ca/B	Cu/Mo	P/Zn
Actual	5.6	6.3	1.3	1.2	1.4	1.3	0.9	1.0	2.9	260	194	35	
Expected	11.0	3.5	0.6	2.6	0.8	3.3	3.1	0.6	0.8	192	450	67	

DATE SAMPLED: / GROWTH STAGE / PLANT PART: BLM/P

DEFINITION OF INTERPRETATION RATINGS

Deficient	Plants should be showing visible symptoms of a nutritional deficiency. Plant growth would definitely be curtailed by an insufficient amount of this element.
Low	Plants may be normal in appearance but probably will be responsive to fertilization with this element.
Sufficient	Plants contain adequate amounts of the element for maximum yield and are normal in appearance.
High	Optimum yields can be expected and plants are normal in appearance. However, concentrations of this element are higher than normally expected.
Excessive	Plants probably show symptoms of a nutritional disorder or stunted growth. Yields may be reduced significantly by an excessive amount of this element.

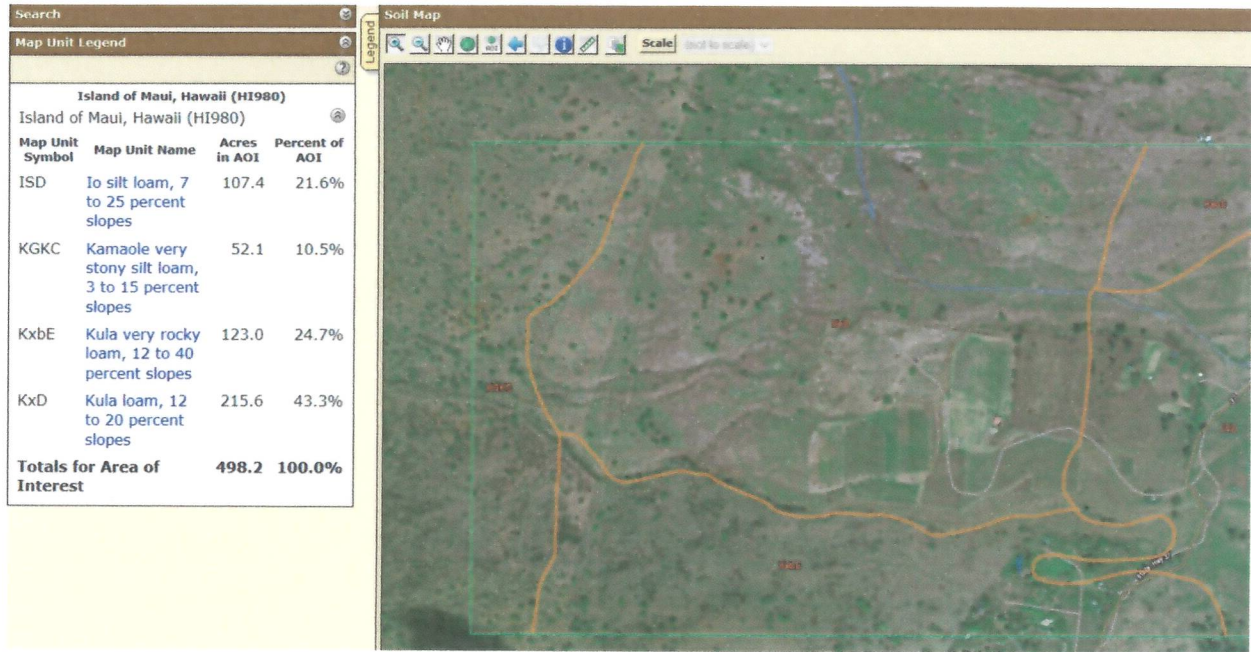
"Our reports are for the exclusive and confidential use of our clients, and may not be reproduced in whole or in part, nor may any reference be made to the work, the result or the company in any advertising, news release, or other public announcements without obtaining our prior written authorization." Ratings are based upon agronomic research and experience. Dust, sprays, method of sampling, time of year and variety all have an impact on results, so interpret with caution. © Copyright 1998 A & L Western Laboratories, Inc.

Phoebe Gordon
Phoebe Gordon, PhD
A & L WESTERN LABORATORIES, INC.

[fig.10]

Io Series analysis taken from 4/19/16

[fig.11]



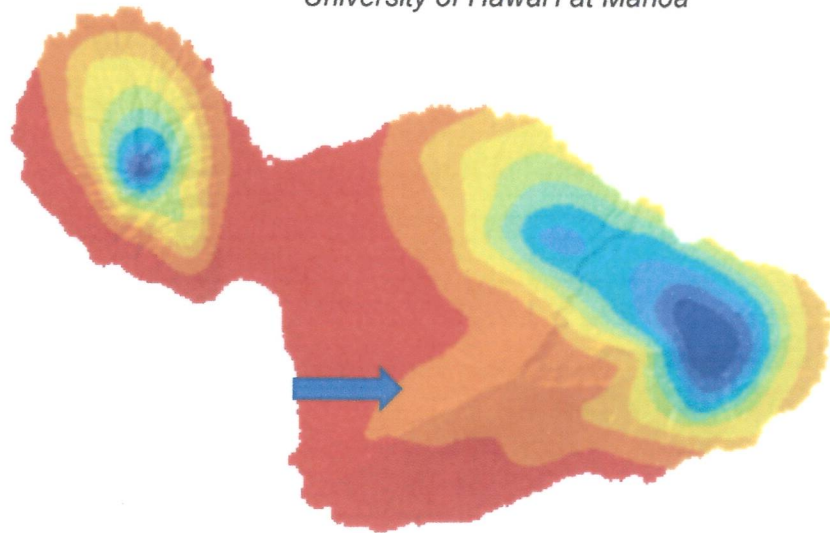
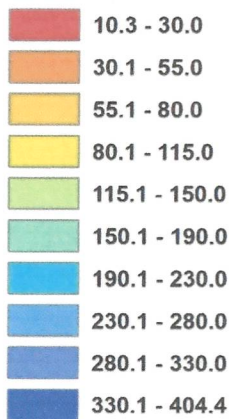
[fig.12]

Mean Annual Rainfall – Maui

adapted from

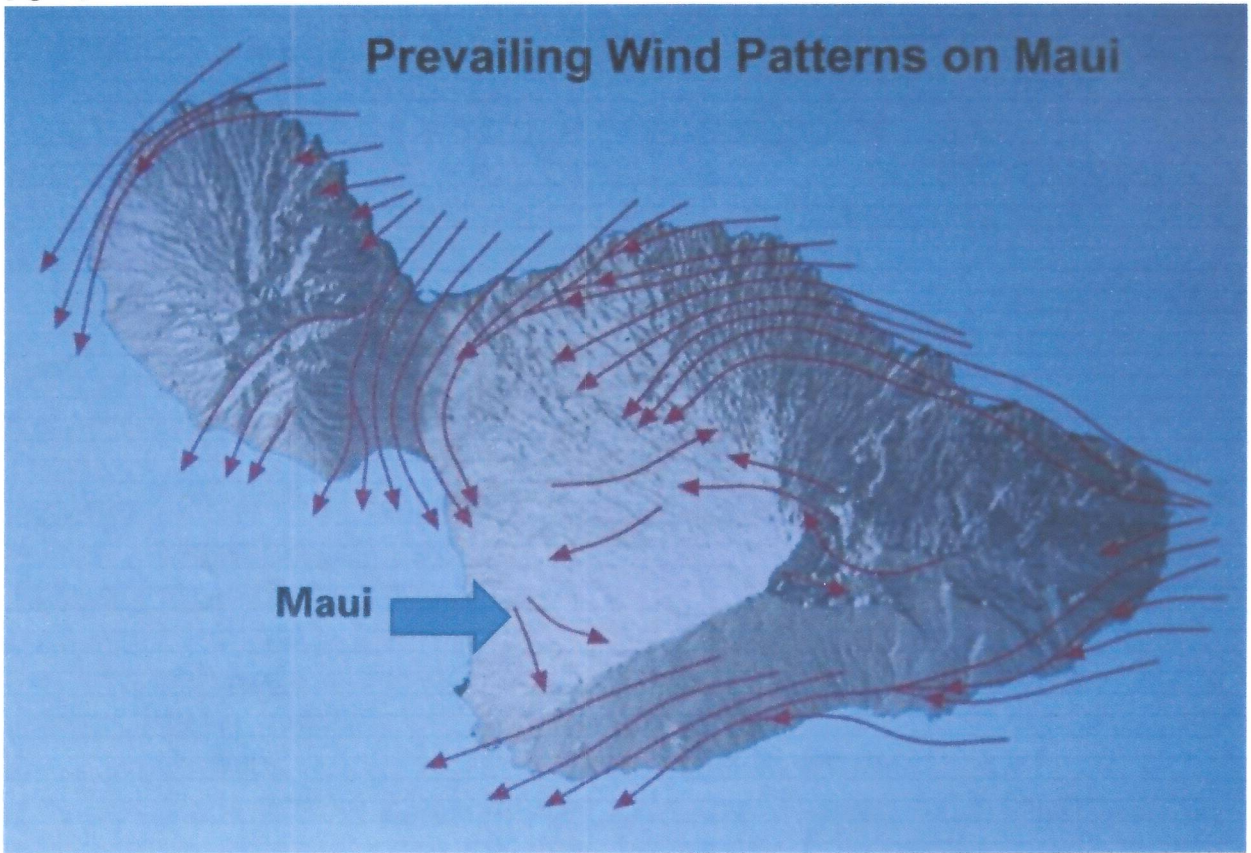
2011 Rainfall Atlas of Hawai'i
 Department of Geography
 University of Hawai'i at Mānoa

Annual Rainfall (inches)



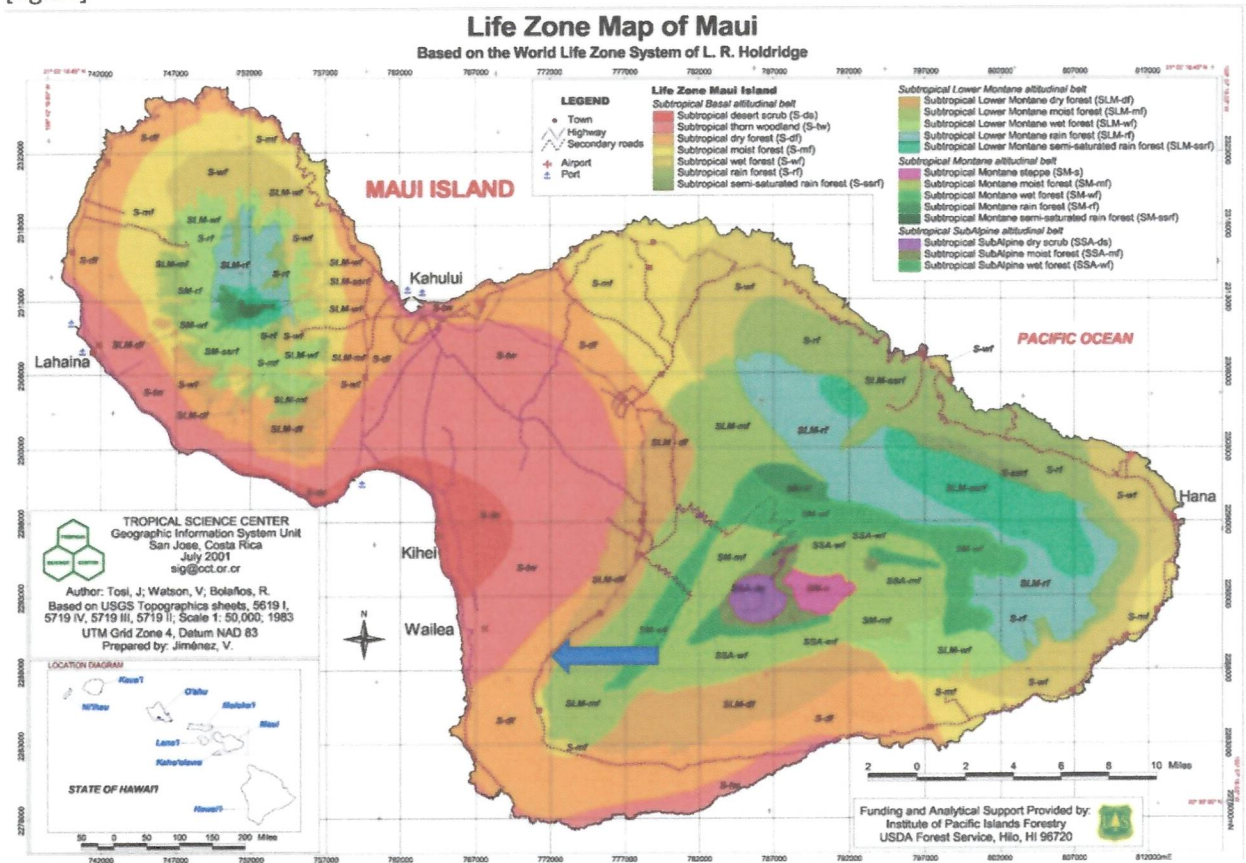
<https://mauivista2418.files.wordpress.com/2012/06/mean-annual-rainfall-map-maui.jpg>

[fig.13]



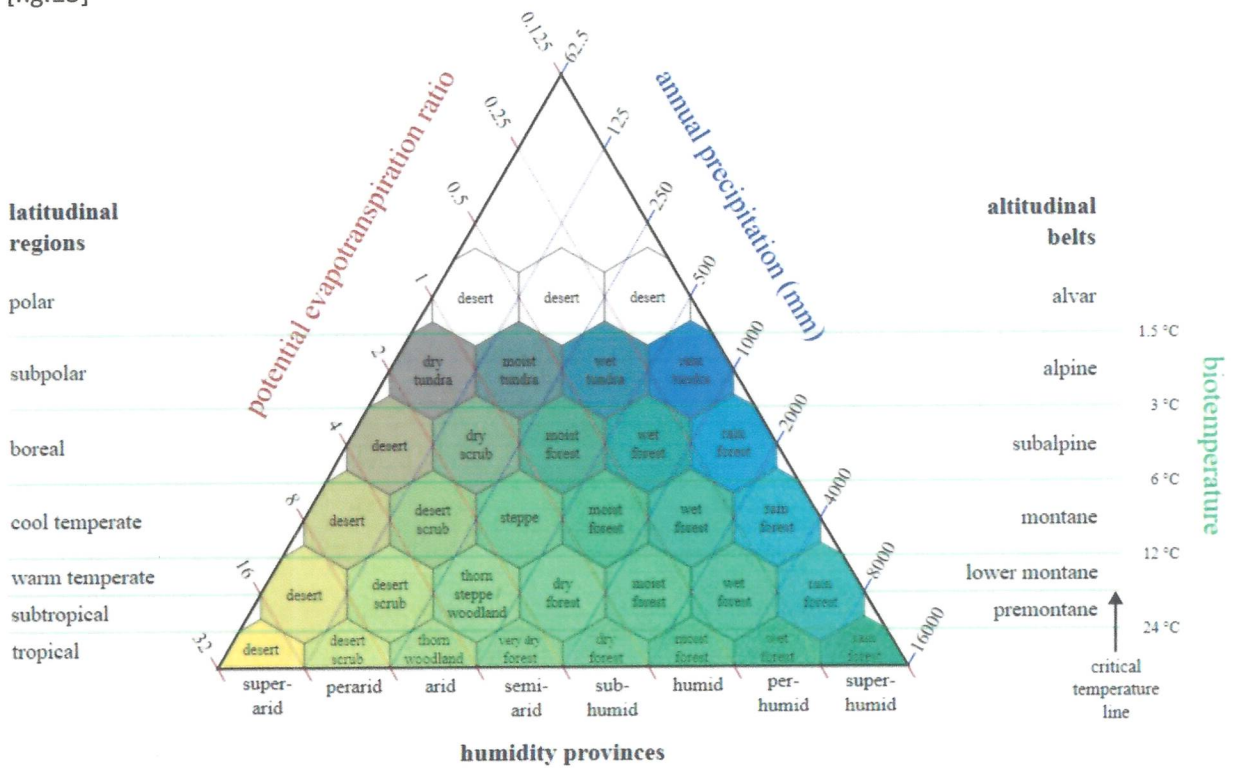
http://maui-communities.weebly.com/uploads/5/6/3/9/5639079/9279869_orig.jpg

[fig.14]

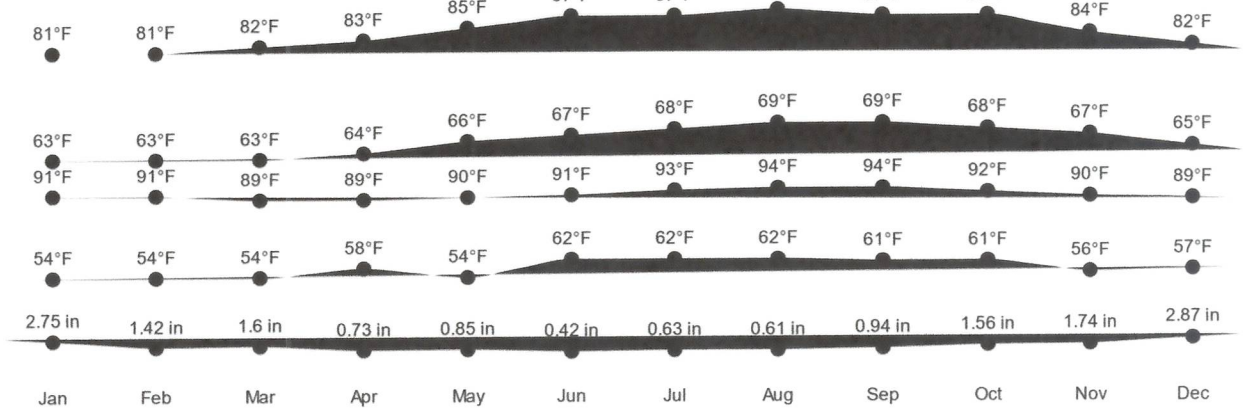


<https://livingonmauinow.files.wordpress.com/2014/09/maui-lifezone-map.jpg>

[fig.15]



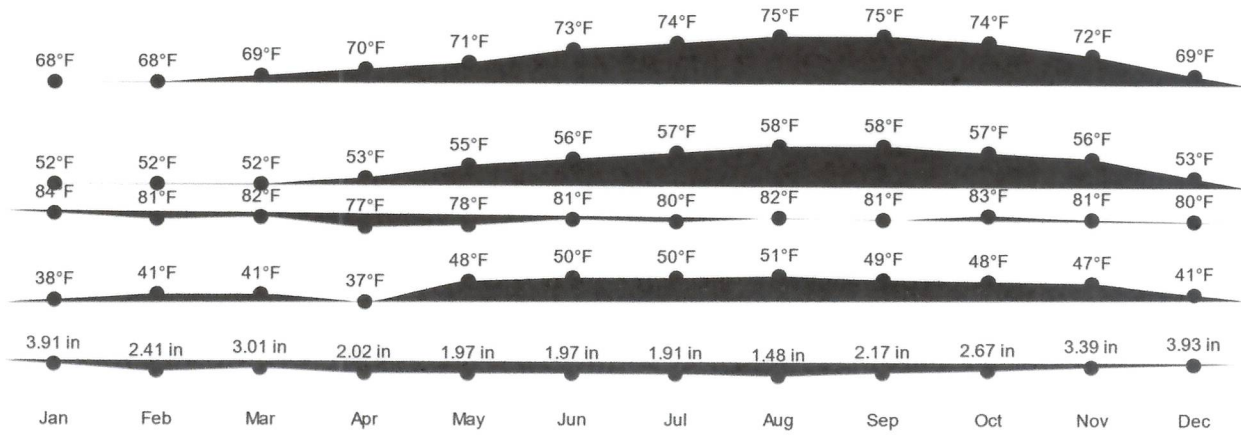
[fig.16]



Ulupalakua average high, average low, recorded high, recorded low and average rainfall.

<https://weather.com/weather/monthly/l/'Ulupalakua+USH10343:27:US>

[fig.17]



Keokea (to the north) average high, average low, recorded high, recorded low and average rainfall.

<https://weather.com/weather/monthly/l/USHI0220:1:US>

[fig.18]

MAKENA BAY, HAWAII

Elevation: 100 feet Latitude: 20 39N Longitude: 156 27W

Average Precipitation

Years on Record: 30 

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
in	16.1	2.8	1.4	1.6	0.7	0.9	0.4	0.6	0.6	0.9	1.6	1.7	2.9

POLIPOLI SPRINGS, HAWAII

Elevation: 6160 feet Latitude: 20 41N Longitude: 156 20W

Average Precipitation

Years on Record: 47 

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
in	50.6	9.8	7.5	4.8	4.7	3.1	1.6	2.4	2.6	2.5	2.9	3.2	5.6

ULUPALAKUA, HAWAII

Elevation: 1900 feet Latitude: 20 39N Longitude: 156 24W

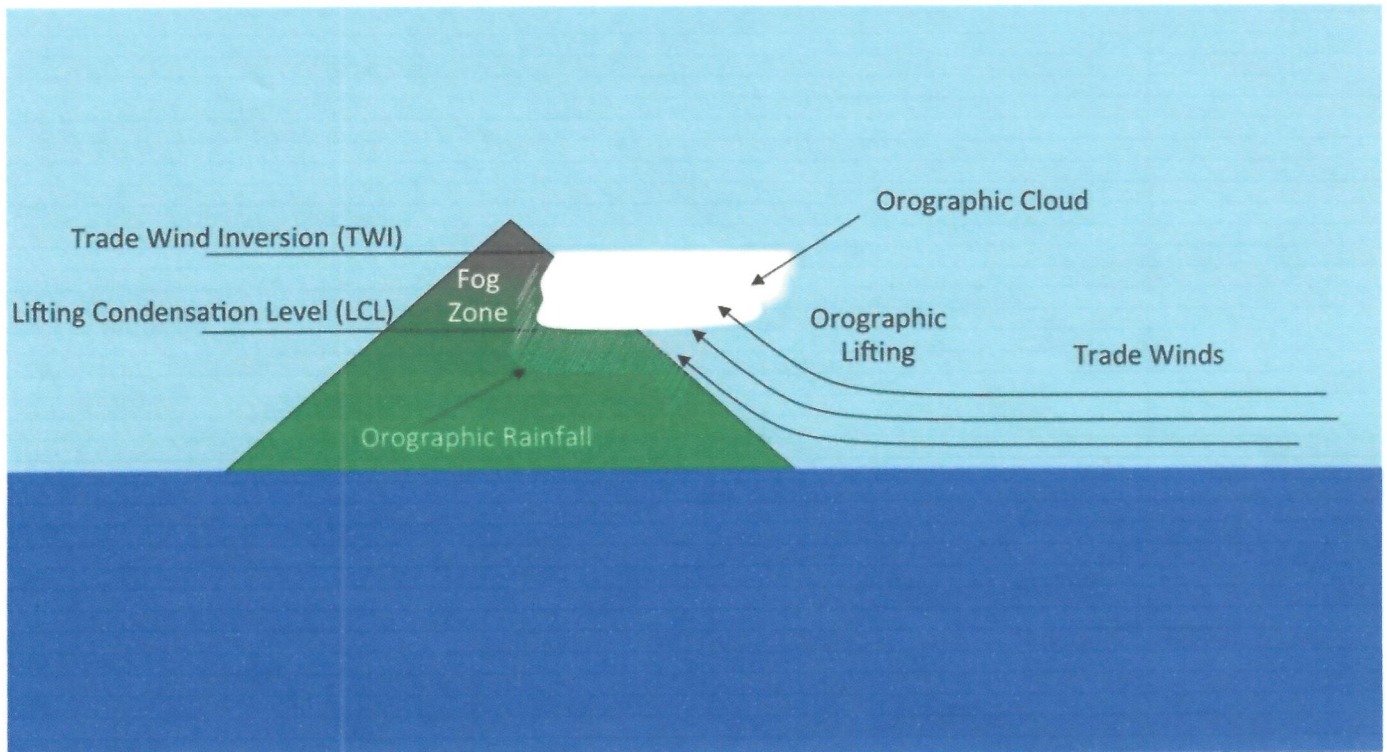
Average Precipitation

Years on Record: 56 

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
in	30.7	4.9	3	3.1	2.5	1.8	1.4	1.8	1.7	2.3	2.2	2.6	3.4

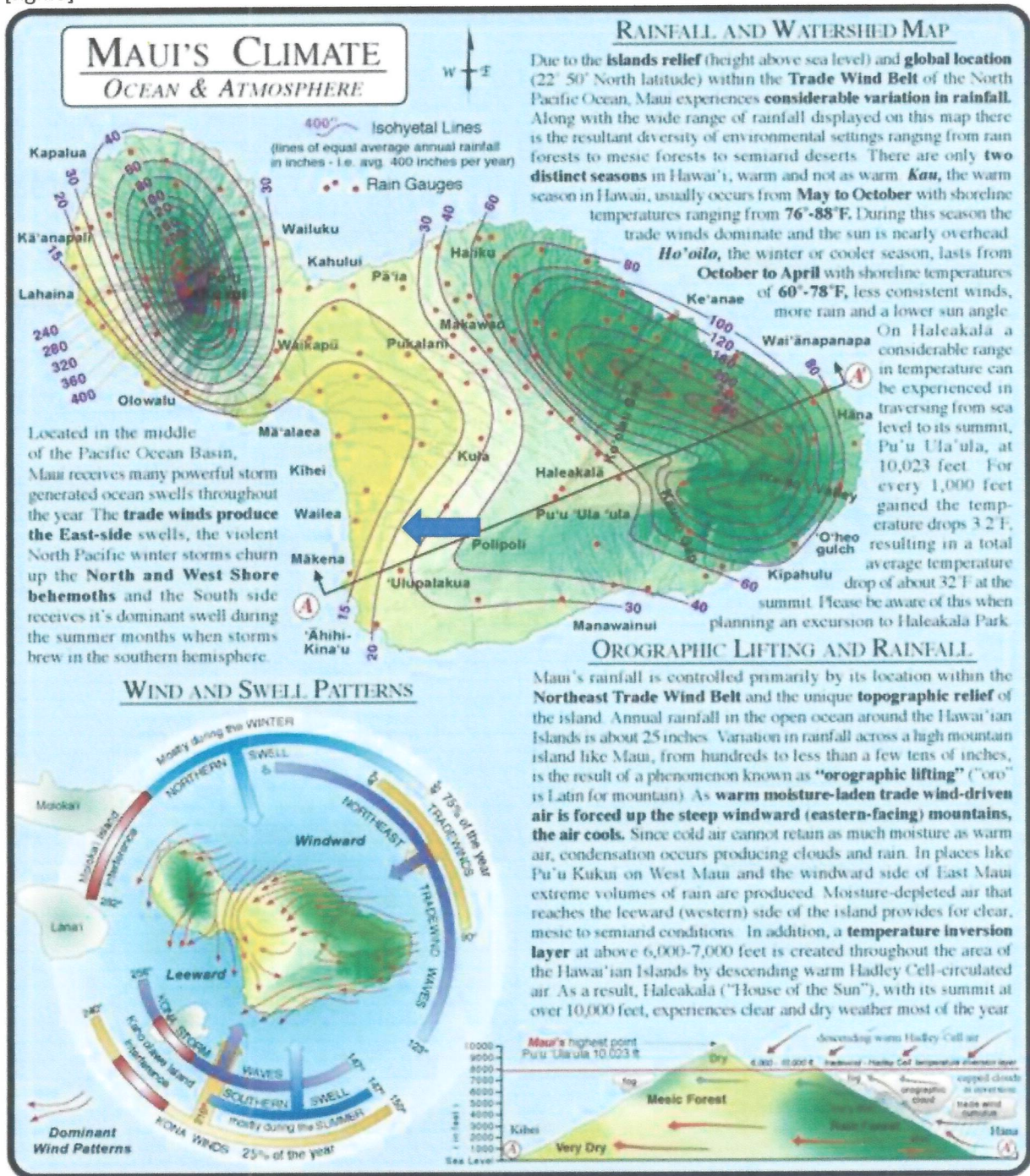
<http://www.weatherbase.com/weather/weather.php?s=248515&cityname=Makena-Bay-Hawaii>

[fig.19]



<http://rainfall.geography.hawaii.edu/rainfall.html>

[fig.20]



<http://www.envdhawaii.com/wp-content/uploads/2012/06/maui-climate.jpg>

Appendix

[app.1]

`Ulupalakua (Breadfruit Ripened On The Back)
by John P. Watkins



Kaulana mai nei
A`o `Ulupalakua
E `inikiniki ahiahi
Ka home a`o paniolo

E wehi e ku`u lei
A`o `Ulupalakua
`Onaona me ka `awapuhi
He nani ma'oli nō

Ha`ina mai ka puana
A`o `Ulupalakua
H `inikiniki ahiahi
Ka home a`o paniolo



John Pi'ilani Watkins

Famous
Is `Ulupalakua
The pangs of the cold evening air
The home of the cowboys

My lei is an adornment
Of `Ulupalakua
The sweet scent of ginger is
Truly beautiful

Tell the refrain
Of `Ulupalakua
The pangs of the cold evening air
The home of the cowboy

Source: Kamehameha Schools HSI Copyright John Watkins - An ancient Maui chief would send runners to Kipahulu for breadfruit. When they returned with the fruit, it was ripe. The chief called the district Ulupalakua or "breadfruit ripened on the back". The composer visited Ulupalakua, in up-country Maui on the southwestern slopes of Haleakala. He was so impressed by the cold mountain air, the scent of ginger and the cowboys, he composed this mele in 1947, to honor the district. Edited by Dr. Barbara Price

<http://www.huapala.org/UL/Ulupalakua.html>

[app.2]

To the vineyards

A stop at the Tedeschi Vineyards off Highway 37 in Keokea is a treat, especially for drivers returning from the long drive to Hana on the rough road skirting the back side of Haleakala.

Get elk burgers at the old-time general store, or take a tour and sample wines at the Tedeschi winery on the grounds of the Ulupalakua Ranch, a favorite cool-climate getaway for Hawaiian King Kalakaua in 1874.

The ranch has been in paniolo or "cowboy" country for more than 160 years. The current owners raise elk, grow grapes and cultivate strawberries, onions and potatoes for local chefs. Pineapple wine comes from fruit grown in lower elevations, then crushed at the winery in an Italian grape press. Cattle eat the leftovers.

The free tours include samples of a chilled pineapple sparkler served inside the king's former guest cottage. Tedeschi Vineyards at the Ulupalakua Ranch, Highway 37, Keokea. Tastings and tours daily. www.mauiwine.com or [877-878-6058](tel:877-878-6058).

<http://www.charlotteobserver.com/living/travel/article9072071.html>

[app.3]

Ranch Heritage Farming at Ulupalakua – at 18,000 acres Maui's second largest ranch – goes back 175 years through six different owners. From the native "poi economy," which produced taro, sweet potatoes and other crops, through sugar production and the raising of livestock, the ranch's changing tactics reflect Hawaii's evolution of modern ag.

In the 1840s, the poi economy started to recede when King Kamehameha III and his advisers argued that an economy of commercial agriculture would be a stronger driver of the island's future. In 1845 Captain Lincoln L. Torbert leased land in Ulupalakua to produce beef, hogs, sheep, sugar, molasses and Irish potatoes. But sugar operations all over the islands faltered as land prices, taxes and competition grew, and in 1856, a retired sea captain, James Makee, bought the Torbert Plantation and changed its name to Rose Ranch. His approach to sugar was successful: For a decade his mill produced 800 or more pounds of sugar per year on 1,000 acres. Makee had broad ideas: Capitalizing on lovely views, he planted exotic

gardens, built cottages, and started what was perhaps Hawaii's first ag-tourism project — a festive retreat that became popular with royalty from the islands and visitors from around the world.

The ranch's next owner, James Isaac Dowsett, who held the property from 1886 to 1900, improved the cattle herd by bringing Aberdeen Angus stock to the islands. Dowsett sold to Dr. James M. Raymond, who in 1922 sold to Frank Baldwin, the grandson of Maui's first Christian missionaries. Baldwin renamed the place Ulupalakua Ranch. Today's operation began in 1963 when C. Pardee Erdman bought from the Baldwins. The Erdman family revived Makee's enterprising spirit, but in a different direction, developing the property into a favorite destination for both travelers and locals.

One of the first buildings that visitors see when they arrive is the colorful Ulupalakua Ranch Store & Grill.

<http://www.readwriteshoot.com/food-farm-1/#/ranching-a-volcano-maui-the-furrow/>

[app.4] ST. JAMES MISSION – MASS SCHEDULE

This church is located in Ulupalakua just past the ranch office and winery. Follow the directions to Our Lady Queen of Angels and continue on the right fork to Ulupalakua.

<http://www.kulacatholiccommunity.org/schedule.html>

[app.5]

Ulupalakua Cemetery

- Info
- Map
-

Kula
Maui County
Hawaii USA

Links

- [View all interments](#) (15)
- [100% photographed](#). [?]
- [Add a name to this cemetery](#)
- [Submit spreadsheet](#) [?]

Search Ulupalakua Cemetery:

<input type="text"/>	<input type="text"/>	<input type="button" value="Search"/>
First Name	Last Name	

<https://www.findagrave.com/cgi-bin/fg.cgi?page=cr&CRid=2363567>

[app.6] Between Grandma's and the Tedeschi Winery is the larger area called Ulupalakua. It is verdant land that has stunning views of the countryside and the coastal resort areas of South Maui below.

<http://mauiguidebook.com/adventures/grandmas-ulupalakua/>

[app.7] **Ulupalakua** is the only wine sub-region of Hawaii, an offshore US archipelago state in the central Pacific Ocean. Ulupalakua is located on the second-largest Hawaiian island, Maui, on the slopes of the dormant Haleakala volcano. The only winery operating on any scale here is Tedeschi Vineyards' Maui winery, part of the Ulupalakua Ranch site, which makes both grape and pineapple wines.

Ulupalakua Ranch sits at an [altitude](#) of almost 2000ft (610m) and its vineyards are planted on the mineral-rich, free-draining volcanic soils which make up most of the Hawaiian islands. Very few wine regions in the world have anything like this maritime-influenced, volcanic [terroir](#), with the obvious exception of northern [Corsica](#) and certain parts of [New Zealand](#).

<https://www.wine-searcher.com/regions-ulupalakua>

[app.8]

LOCATION KULA

HI

Established Series

Rev. HHS/RCH

08/2000

KULA SERIES

The Kula series consists of deep, well drained soils that formed in material weathered from basic igneous rock. Kula soils are on uplands and have slopes of 4 to 40 percent. Mean annual rainfall is about 30 inches and mean annual temperature is about 66 degrees F.

TAXONOMIC CLASS: Medial, amorphic, isothermic Humic Haplustands

TYPICAL PEDON: Kula cobbly loam - pasture. (Colors are for moist soil unless otherwise noted. All textures are for "apparent field textures.")

A1--0 to 8 inches; dark reddish brown (5YR 3/2) cobbly loam, dark reddish brown (5YR 3/4) dry, weak fine granular structure; soft, friable, nonsticky and nonplastic; many fine roots; many medium pores; many very small red and black particles visible under hand lens; slight

effervescence with hydrogen peroxide; slightly acid (pH 5.2); clear smooth boundary. (7 to 10 inches thick)

B21--8 to 19 inches; dark reddish brown (5YR 3/2) loam, dark reddish brown (5YR 3/4) dry; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many fine roots; many medium pores; slightly acid (pH 6.5); gradual wavy boundary. (8 to 13 inches thick)

B22--19 to 30 inches; dark reddish brown (5YR 3/3) silt loam, reddish brown (5YR 4/4) dry; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many medium and coarse pores; neutral (pH 6.8); abrupt irregular boundary. (10 to 12 inches thick)

IIB23b--30 to 42 inches; dark reddish brown (5YR 3/3) silty clay loam, dark reddish brown (5YR 3/4) dry; strong fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many fine roots; many fine and medium pores; nearly continuous gelatin-like coatings of peds; many sand-size aggregates that are resistant to crushing; common worm casts 10 to 15 mm. in size; many very fine roots matted along surfaces of worm casts; neutral (pH 6.8); clear wavy boundary. (10 to 13 inches thick)

IIB3b--42 to 54 inches; dark reddish brown (5YR 3/2) silty clay loam, reddish brown (5YR 4/4) dry; strong fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine roots and many fine medium pores; 30 to 40 percent weathered andesite and basalt fragments; neutral (pH 6.8); clear wavy boundary. (10 to 14 inches thick)

IICr--54 inches; weathered andesite and basalt with thin seams of soil material in cracks.

TYPE LOCATION: Island of Maui, Maui County, Hawaii; Kilohana Quadrangle - 20 degrees 45' 40" north latitude and 156 degrees 19' 22" west longitude; 200 feet east of machine tool shed on Kula Branch of the University of Hawaii Experiment Station farm, about 0.4 mile east of Waiakoa.

RANGE IN CHARACTERISTICS: Depth of soil ranges from 45 to 60 inches to weathered andesite and basalt. The A horizon has hue of 5YR through 10YR, value of 2 or 3 moist, 3 or 4 dry, and chroma of 2 or 3 moist and 2 or 4 dry. The B horizon has hue of 5YR through 10YR, value of 3 or 4 moist or dry, and chroma of 2 through 4 moist. It is loam or silty clay loam. Structure in IIB horizon ranges from strong to moderate.

COMPETING SERIES: These are the [Kamaoa](#), Kinkoni, [Naalehu](#), [Palapalai](#), and [Waimea](#) series. Kamaoa soils have strong structure in the A horizon and weak structure in the B horizon and lack a buried B horizon. [Kikoni](#) soils have strong structure in the A horizon and a massive upper B horizon. Naalehu soils are weakly smeary in the B horizon and have a mean annual soil temperature of 72 degrees F. Palapalai soils have strong structure in the A horizon and are weakly smeary and have a weak structure in the B horizon. Waimea soils have weak structure or are massive throughout the B horizon and lack a buried B horizon.

GEOGRAPHIC SETTING: The Kula soils are on uplands. Slope is 4 to 40 percent. Rock outcrop is common on ridges. Elevation ranges from 2,000 to 3,500 feet. The soils formed in volcanic ash over weathered andesite and basalt. Annual rainfall is 25 to 40 inches. Mean annual temperature is about 66 degrees F.; average January temperature is 64 degrees F.; average July temperature is 68 degrees F.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the [Kaipoioi](#), [Pane](#) and [Kamaole](#) soils. Kaipoioi soils have an umbric epipedon and mean annual soil temperature of 56 degrees F. Pane soils have an umbric epipedon and are weakly smeary throughout the solum. Kamaole soils have a fragmental control section.

DRAINAGE AND PERMEABILITY: Well drained; medium runoff; moderately rapid permeability.

USE AND VEGETATION: These soils are used for production of vegetable crops, flowers and pasture. The natural vegetation is mainly bermudagrass (*Cynodon dactylon*), black wattle (*Acacia decurrens*), joe (*Verbena litoralis*), Natal redtop (*Tricholaena repens*), rattailgrass (*Sporobolus capensis*) and yellow toxtail (*Setaria geniculata*).

DISTRIBUTION AND EXTENT: Island of Maui, Maui County, Hawaii. This series is approximately 8,800 acres in extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Island of Maui, Maui County, Hawaii, 1971.

OSD scanned by SSQA. Last revised by state on 5/78.

National Cooperative Soil Survey

U.S.A.

https://soilseries.sc.egov.usda.gov/OSD_Docs/K/KULA.html

[app.9]

LOCATION IO

HI

Established Series

Rev. CWS/SN/HI

01/2004

IO SERIES

The Io series consists of deep, well drained soils that formed in material weathered from volcanic ash. Io soils are on uplands and have slopes of 7 to 25 percent. Mean annual rainfall is about 30 inches and mean annual temperature is about 69 degrees F.

TAXONOMIC CLASS: Medial over pumiceous or cindery, amorphic over mixed, isothermic Humic Haplustands

TYPICAL PEDON: lo silt loam - pasture. (Colors are for moist soil unless otherwise noted. Textures are "apparent field textures.")

Ap--0 to 10 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; weak and moderate fine and very fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; many fine and very fine pores; slight effervescence with hydrogen peroxide; neutral (pH 6.8); clear wavy boundary. (9 to 12 inches thick)

A--10 to 17 inches; dark brown (7.5YR 3/2) silty clay loam, brown (7.5YR 4/2) dry; weak and moderate fine subangular blocky structure; hard, friable, sticky and plastic; many fine roots; many fine and very fine pores; neutral (pH 7.1); gradual wavy boundary. (4 to 9 inches thick)

Bw1--17 to 25 inches; dark brown (10YR 3/3) clay loam, brown (10YR 4/3) dry; weak fine and medium subangular blocky structure; hard, friable, sticky and plastic; compact in place; many fine roots; many fine pores; thin dark coatings that look like organic stains on ped; slightly alkaline (pH 7.5); clear smooth boundary. (7 to 11 inches thick)

Bw2--25 to 30 inches; dark reddish brown (5YR 3/3) and yellowish red (5YR 4/6) paragravelly clay loam, reddish brown (5YR 4/4) and yellowish red (5YR 5/6) dry; weak and moderate fine subangular blocky structure; hard, friable sticky and plastic; many fine roots; many medium and fine pores; 20 percent fine cinders; slightly alkaline (pH 7.6); abrupt smooth boundary. (4 to 6 inches thick)

2C--30 to 39 inches; black cinders 1 to 10 mm in size; single grained; extremely hard, loose; few fine roots; moderately alkaline (pH 8.0); abrupt smooth boundary. (8 to 10 inches thick)

3C--39 to 45 inches; dark reddish brown (5YR 3/4) loam, reddish yellow (7.5YR 6/6) dry; massive; slightly hard, friable, slightly sticky, slightly plastic and weakly smeary; few fine pores; moderately alkaline (pH 7.9).

TYPE LOCATION: Island of Maui, Maui County, Hawaii. On Ulupalakua Ranch about 100 feet west of Makena Road in the northeast corner of Keanapuni number 2 pasture; 1.1 miles southwest of State Highway 37 and Makena Road intersection; Makena Quadrangle; lat. 20 degrees 39 minutes 20 seconds N. and 156 degrees 24 minutes 40 seconds W. (Old Hawaiian Datum).

RANGE IN CHARACTERISTICS: Depth to black unweathered cinders ranges from 24 to 38 inches. The mean annual soil temperature is 69 degrees F.

The A horizon has hue of 7.5YR or 10YR, and value of 2 or 3 moist and 3 or 4 dry.

The B horizon has hue of 5YR through 10YR, value of 2 or 3 moist and 3 or 4 dry, and chroma of 2 or 3 moist and 3 through 6 dry. It is clay loam or silty clay loam.

COMPETING SERIES: (This needs updating.) These are the [Kainaliu](#), [Kamaoa](#), [Kikoni](#), [Kula](#), [Naalehu](#), [Palapalai](#), [Ulupalakua](#), and [Waimea](#) series. Kainaliu soils are 20 to 40 inches deep over fragmental `a`a lava and have mean annual soil temperature of 72 degrees F. Kamaoa soils have strong structure in the A horizon and a medial control section. Kikoni soils are massive in the upper part of the B horizon and have a medial control section. Kula soils have a buried B horizon and a medial control section. Naalehu soils are weakly smeary in the B horizon and have a medial control section. Palapalai soils have strong structure in the A1 horizon, are weakly smeary in the B horizon and have a medial control section. Ulupalakua soils have strong structure throughout and gelatin-like coatings on peds throughout the B horizon. Waimea soils are slightly acid to neutral in the B horizon and have a medial control section.

GEOGRAPHIC SETTING: The Io series is on uplands at elevations of 1,000 to 2,500 feet. Slope is 7 to 25 percent. The soil formed in volcanic ash and cinders. Outcrops of `a`a lava are common. Mean annual rainfall is 25 to 35 inches. Mean annual temperature is about 69 degrees F., average January temperature is 67 degrees F., and average July temperature is 71 degrees F.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the competing [Kula](#) and [Ulupalakua](#) soils and the [Oanapuka](#) soils. Oanapuka soils have prismatic structure in the B horizon, have a medial control section, and mean annual soil temperature of 73 degrees F.

DRAINAGE AND PERMEABILITY: Well drained; medium runoff; moderately rapid permeability.

USE AND VEGETATION: These soils are used for pasture. The natural vegetation is bermudagrass (*Cynodon dactylon*), buffelgrass (*Pennisetum ciliare*), burclover (*Medicago hispida*), cactus (*Opuntia* spp.), guineagrass (*Panicum maximum*), ilima (*Sida fallax*), lantana (*Lantana camara*), mao (*Obutilon molle*), and Natal redtop (*Tricholaena repens*).

DISTRIBUTION AND EXTENT: Island of Maui, Maui County, Hawaii. This series is about 3,300 acres in extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Davis, California.

SERIES ESTABLISHED: Soil Survey, Territory of Hawaii, 1949.

REMARKS:

FCC Classification: LCdx.

Edit Log: 12/03 SN. Horizon designations updated.

8/00 SN. Classification changed from Medial over cindery, isothermic Typic Eutrandspts due to changes in Taxonomy.

ADDITIONAL DATA: Io modal NSSL sample S65HI009-021 (formerly S65Ha4-21); S65HI009-022 (formerly S65Ha4-22).

National Cooperative Soil Survey

U.S.A. https://soilseries.sc.egov.usda.gov/OSD_Docs/l/IO.html

[app.10]

Volcanic ash soils (Andisol)

Typical Characteristics:

- **Parent Material:** Volcanic soils, also known as Andisols, are formed from volcanic ash and cinder deposits. While most of the world's volcanic soils are not highly weathered, there are notable exceptions on Maui.
- **Mineralogy:** Volcanic soils largely consist of non-crystalline (amorphous) minerals, such as allophone and imogolite.
 - These minerals form strong bonds with organic matter. As a result, organic matter generally accumulates in the surface horizon.
 - In addition to organic matter, volcanic soils may also contain high amounts of volcanic glass material with the possibility of amorphous iron and aluminum minerals.
- **Physical Traits:** Andisols are usually light and fluffy and are easily tilled. Like a sponge, these soils also hold a lot of water.
- **Fertility:** When not highly weathered, volcanic soils are typically very fertile soils. However, volcanic soils form strong complexes with phosphorus. When poorly managed, phosphorus can be limiting. Additionally, the amorphous minerals that dominate volcanic soil can generate an anion exchange capacity (AEC) when under acidic conditions and depleted in organic matter. Fertility problems may be corrected with additions of organic matter, lime and/or fertilizer amendments.

Volcanic soils of Maui:

GLASSY, DRY VOLCANIC ASH SOIL (VITRITORRAND)

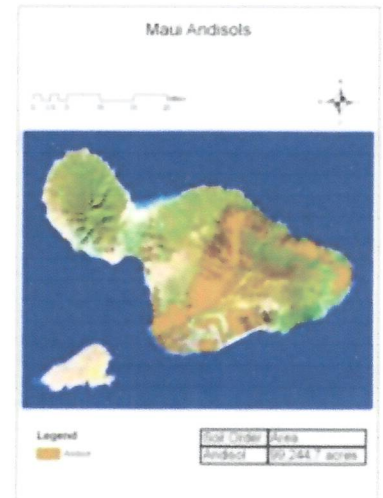
- Alae Series
- Oanapuka Series

HOT, DRY VOLCANIC ASH SOIL (HAPLOTORRAND)

- Makena series

MOIST/DRY VOLCANIC ASH SOIL (HAPLUSTAND)

- Io Series
- Kaipoipoi Series
- Kula Series
- Laumaia Series
- Oli Series
- Olinda Series
- Pane Series
- Puu Pa Series
- Ulupalakua Series



enlarge the map

https://www.ctahr.hawaii.edu/mauisoil/b_andisol.aspx

[app.11]

Ulupalakua Ranch History

The ranch lies on lands that have a rich, interesting history. Prior to European contact, early Hawaiians farmed sweet potatoes, dry land taro and harvested wood, birds and pigs from forested areas (the bare slopes you see today were once covered with sweet smelling Sandlewood and Koa trees). Modern agricultural began on what is now Ulupalakua Ranch lands in 1845, that era

lasting until 1856 when Linton L. Torbert, active member of the Royal Hawaiian Agricultural Society, farmed potatoes and corn, primarily to supply island merchant ships and California's 'gold rush' era. to ship to California to fuel that regions 'gold rush' era and on Direction from King Kamehameha III planted sugar cane. For three decades (1856-1886), ex-whaling captain, James Makee farmed sugar cane and other crops. This early entrepreneur even planted cotton to take advantage of the Union blockade of southern ports during the Civil War. Remnants of the sugar mill that Makee built, then at the lead of mill design and technology, are still visible on the ranch. Between 1886 and 1900, the property was owned and operated by the Dowsett family, and it was during this tenure that the property began ranching. From 1900 until 1922 the Raymond family completed the change from crop farming to a cattle ranch. Between 1922 through 1963, the ranch was owned and operated by the Baldwin family.



In 1963, C. Pardee Erdman purchased Ulupalakua Ranch from the Baldwin family and the Erdman family has operated it since that time. The ranch's peak size was about 40,000 acres before approximately 20,000 acres of leased land was turned back over to the State of Hawaii Department of Hawaiian Home Lands (1967) and the State of Hawaii Department of Land and Natural Resources (1997). Today, Ulupalakua Ranch operates approximately 18,000 acres, 16,000 acres of fee simple land and 2,000 acres leased from the State of Hawaii and private individuals.



Image: 6 of 8 Page All Pages Issues All Issues Text PDF JP2 (3.4 MB)

SIX THE MAUI NEWS, FRIDAY, AUGUST 10, 1917.

Home Gardens Not Affecting Market

Most Vegetables in Good Demand Says Longley—Eggs Shade Off—Grapes And Bananas A Glut—Hogs Very High

HONOLULU, AUGUST 9.—Although island eggs are still scarce, the price has dropped slightly during the week. Consumers refuse to pay the big difference between imported eggs and the home product. It is hard to understand how California eggs can be landed here at from 28 to 40 cents a dozen if the price of food are relatively as high on the Coast as here.

The home gardens which were planted some time ago, have evidently not affected the market to any extent as the price of green vegetables is normal. Many beans have dropped a little during the week and red and callio beans are now selling from 19 to 21 dollars. There is no sweet corn in the market at present and good ears would bring about three dollars a hundred at the present time. Cabbage still brings very good prices. There are very few good Island potatoes on the market now. A great many potatoes now on hand are more or less wormy. These potatoes will have to be sold at a sacrifice so producers should be careful not to send them to the Honolulu market. Sweet potatoes have dropped a little in price and it is probable that they will drop still more when the new planting comes in. Onions are again in demand at about 1 1/2 a pound, due to the scarcity and poor condition of the imported stock.

Bananas and grapes are still plentiful and the consumer should use as many of these as possible in order to prevent heavy loss to the growers.

Hogs are still bringing very high prices. It is reported that one man got as high as 25 cents a pound dressed weight for an exceptionally good

Local Anglers Have Fine Sport Off South Coast

As a result of a fishing trip off Kaula and Malakani on Thursday and Friday of last week, in which D. T. Fleming, John Fleming, Dr. Harry Poon, A. C. Capwell, and E. R. Bevin, took part, 21 fish were taken, aggregated over 200 in weight. A 20-pound one hooked by Bevin made a game fight and was one of the best catches. Two fish, of about 35 pounds weight each, a fine mahimahi, and a variety of other fish were taken.

TELEGRAPH NEWS OF THE WEEK

WASHINGTON, August 5—Court-plaster forwarded to public health bureau by Ohio board of health contains lock-jaw germs.

ROME, August 5—Stated in vatican circles that Pope's partial attitude toward Germany is changing because of Belgium deportations.

PACIFIC PORT, August 5—Root's statement "Abiding faith that Russia will work out great democracy". Pleaded for deep sympathy and stand of democracy against autocracy almost in despair. In end will rise great free country, remade in spirit of fathers. Confident now that they will accomplish divine mission and gain liberty. We must not argue why in war but realize time has come when American liberty, justice, independence and freedom are at stake.

Charles Russell said, "If democracy wins, Russian people will ride, but if it loses, America will be imperiled and flag will be in danger. Democracy hangs by a thread and depends on utmost determination of America."

PETROGRAD, August 5—Political conference ends. All cabinet with exception of Kerensky present. Votes confidence in Kerensky and invites him to form cabinet.

WASHINGTON, August 5—Department of state indicates agreement will soon be reached between neutrals for export council guaranteeing no re-exports to Germany.

Crowder wires governors and says no claimants for exemption will be recognized except on grounds of physical disability.

Published in local paper that failure to respond to draft was tantamount to desertion which under military law the punishment is death.

BERLIN, August 5—Rapid progress toward liberation of Bukovina. Russians attempt to recapture Asanuloi on Moldovan front.

BRITISH HEADQUARTERS, August 5—German artillery heavy on Ypres front evidently preparing to recapture recent losses along allies' forward lines. Gun positions bombarded. French continue drive and patrol and explore advance areas. British completely restore Arras position. Russians and Austro-Hungarians battling at Kimpulung in Rumania. Russians retired. Aerial activity along Austro-Italian front.

HONOLULU, August 4—Schroeder suspended by Hackfeld & Co. George M. Collins, city engineer becomes engineer for the Bishop estate, succeeding the late Guy Gere.

Orders from Washington prevent through passengers leaving seamen touching at this port, in order to prevent illegal communication with the enemy. Officials only are accepted.

Mrs. Jack London presents bust of Jack London to Honolulu. Will be unveiled on Balboa day at the opening of the civic convention.

WASHINGTON, August 4—Department of justice announced that antidrafters in Oklahoma would be suppressed with an iron hand.

Government commandeers all vessels over 2500 tons which are now

SEALING TENDERS

Sealed tenders will be received at the office of the County Clerk, County of Maui, T. H., until 2:00 P. M. Tuesday, August 21, 1917, for the construction of a one-room school building at Kaula, Malakani, T. H.

The Board of Supervisors reserves the right to reject any and all tenders. Plans and specifications and blank proposals are on file in the office of the County Engineer.

A deposit of \$500 is required for each set of plans and specifications.

BY ORDER OF THE BOARD OF SUPERVISORS FOR AND WITH IN THE COUNTY OF MAUI

W. F. KAHE,
County Clerk, County of Maui,
Aug. 19, 1917.

NOTICE OF MEETING

A public meeting of the Board of License Commissioners for the County of Maui, will be held in the Town Hall, in Wailuku, Maui on Friday, the 17th day of August, 1917, at 2:30 o'clock A. M., for the purpose of considering and passing upon the application of the KAUPAKALUA WINE AND LIQUOR COMPANY, LIMITED, for a license of the Fourth Class, that is to sell wine manufactured by the licensee from grapes grown in the Territory by the licensee or others, at the Winery of said Company situated at Kaupakalua, Maui, under the Provisions of Chapter 122 of the Revised Laws of Hawaii, 1915, and all amendments thereto.

All protests and objections against the granting of a license under said

POULTRY.

Island Duck, lb., cartons, ..	38 to 4
Island Duck, doz., ..	33 to 3
Island, No. 1, ..	4
Island, No. 2, ..	4
Island, No. 3, ..	4
Island, No. 4, ..	4
Island, No. 5, ..	4
Island, No. 6, ..	4
Island, No. 7, ..	4
Island, No. 8, ..	4
Island, No. 9, ..	4
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Island, No. 95, ..	4
Island, No. 96, ..	4
Island, No. 97, ..	4
Island, No. 98, ..	4
Island, No. 99, ..	4
Island, No. 100, ..	4

VEGETABLES AND PRODUCE.

Beans, string, green, ..	3
Beans, string, wax, ..	3
Beans, Lima in pod, ..	30 1/2
Beans, Maui, lb., ..	20 to 2
Beans, Calico, cwt., ..	10 1/2
Beans, small white, ..	14 to 1
Peas, dry lb., cwt., ..	Not
Peas, dry, bunches, ..	3
Carrots, doz bunches, ..	4
Cabbage, cwt., ..	3.00 to 2.5
Corn, sweet, doz ears, ..	Not
Corn, Haw. in, doz, ..	75.00 to 80 1/2
Corn, Haw. small, yd., ..	Not
Onions, small, cwt., ..	7 1/2
Onions, large, cwt., ..	7 1/2
Onions, lb., ..	10 to 1
Peanuts, doz lb., ..	68 to 3
Green, peppers, bell, ..	4
Green, peppers, chili, ..	4
Potatoes, lb., ..	2.25 to 2.5
Potatoes sweet cwt., ..	1.40 to 1.5
Potatoes sweet, ..	1.00 to 1.2
Taro, bunch, ..	Not
Tomatoes, ..	62 1/2 to 1
Green peas, lb., ..	Not
Cucumbers, doz., ..	50 to 3
Pumpkins, lb., ..	Not
Onions, lb., ..	82 1/2

FRUITS.

Bananas, Chinese, Bu., ..	20 to 3
Bananas, Cooking Bu., ..	1.25 to 1.5
Figs, doz, ..	1.5
Limes, doz, ..	1.00 to 1.2
Grapes, Inabilla, lb., ..	.04 to .5
Pineapples, cwt., ..	1.5
Papayas, lb., ..	81 1/2 to 61
Strawberries, ..	Not

LIVESTOCK.

Good cattle and sheep are ..	Not
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https://napavalleyregister.com/business/maui-winemakers-make-a-splash-with-pineapple-wines-and-island/article_48281276-094c-5fec-80d9-18be5666b9cf.html

Maui winemakers make a splash with pineapple wine and island-grown grapes

By GEORGE MEDOVOY

Special to the Register Jul 3, 2003

TRY 1 MONTH FOR 99¢

MAUI — Maui Splash. Sounds like the perfect name for a dream vacation, right?

Well, yes, but with a surprise.

Maui Splash is a zingy pineapple-and-passion-fruit wine produced by Tedeschi Vineyards in less-traveled upcountry Maui, a blissful region of green pastureland towering above the island's fabled beaches, a place where Maui's legendary "panio" cowboys herd cattle in a setting reminiscent of Sonoma County.

The winery lies about an hour away from Maui's beaches. It's reached by a two-lane road that passes cattle-and-horse-crossing signs, picturesque, tiny towns, and the occasional roadside curiosities — like Grandma's Coffee House — as it winds its way up the steep slopes of the mighty Haleakala, the largest dormant volcano in the world,

Dark, ominous clouds began to fill the mid-morning sky as we approached Tedeschi Vineyards, but it was only one of those short-lived Maui showers. In a short time, the rain had spent itself, and the sun began to radiate through the last of the clouds. It turned out to be a sunny and warm day, just right for touring and picnicking, a day seemingly made by the Polynesian god Maui, who — legend has it — used his superhuman strength to lasso the sun and slow its progress across the sky so that humans could enjoy more sunshine.

This 2,000-foot elevation offers memorable vistas of neighboring Molokini crater, where boats anchor for snorkeling. Also in the view is Kahoolawe, which for many years was called Hawaii's "Target Isle," because of its previous use as a practice target by Allied military gunners.

Tedeschi Vineyards sits on spacious grounds leased from the 20,000-acre Ulupalakua Cattle Ranch, whose colorful history is worth noting.

In 1856, a retired whaling captain named James Makee purchased an old sugar plantation here with more than 1,000 head of livestock. He named his new home "Rose Ranch" after his wife Catherine's favorite (and now official Maui) flower, the Lokelani Rose.

Makee and his wife transformed Rose Ranch into an island showplace famed for its hospitality. Makee himself delighted in welcoming offshore guests — who required a whole day simply to get up to the high ground from the shoreline.

One of the more colorful guests was Hawaii's "Merrie Monarch," King Kalakaua, who came with his wife Queen Kapi'olani.

During these visits, the king and the captain would spend lazy days in legendary pool games, drinking champagne together in complete abandon.

In 1963, the ranch was re-named "Ulupalakua Ranch," meaning "bread fruit ripened the back." The winery was established in 1974, a partnership between a Californian, Emil Tedeschi and C. Purdy Erdman of Ulupalakua Ranch.

At the winery

"Ah, you made it up the mountain," said Momi DeMello, a member of Tedeschi's c

staff. "Welcome to upcountry Maui. We like it here."

In the 19th century, the winery's tasting room was a jail for unruly cowboys. "The cash register stands is the old trap door to the dungeon," DeMello explained.

But on to wine.

Tedeschi Vineyards cultivates 22 acres of Carnelian grapes on the cool, wind-swept slopes of Haleakala, not far from the sunny resort area of Wailea.

Experts from the UC Davis Department of Viticulture and Enology had a hand in developing the winery's grape type.

"UC Davis actually helped us develop a hybrid that's called Carnelian," said DeMello. "We intended to do just Champagne, so the grape that is grown is very high in acid because that's what we wanted for the Champagne."

While waiting for the first harvest to mature, Tedeschi turned inventive and playful experimenting with pineapple concentrate to develop Maui Blanc pineapple wine – soft, dry wine with a subtle flavor that is also Tedeschi's most popular product.

"About two or three years later, our winemaker became very creative," DeMello said. "He took our pineapple wine and added some passion fruit to it. It's wonderful."

This vintage called "Maui Splash" is pleasantly fruity, though not overbearingly so serve it nice and cold," DeMello advised. "The colder you can get it, the better."

Two other pineapple products are made here: Pineapple Sparkling Wine, a crisp, fr drink with a fresh pineapple flavor, and Maui Blush, a pale pink table wine.

The winery also produces two Carnelian wines, Plantation Red, a very full-bodied, wine aged in oak, and Ulupalakua Red, a much softer table wine. There is also a R Ranch Cuvee, a light, dry vintage named after the Maui rose.

The winery's first grape product, Maui Brut-Blanc de Noirs 1980, was served at R Reagan's inauguration.

The Maui Brut-Blanc de Noirs paired well with a lovely fish dish I tried at Raffles Restaurant in the Renaissance Wailea Resort Hotel. Made with a kind of Maui red snapper, the dish was called Wok Fried Opakapaka and was served with Thai Cocc Curry Sauce.

The drive to the Tedeschi Winery goes through the country town of Kula, where M famous protea flowers are grown. Also on the route is Makawao, known as "the big little town in upcountry" where paniolos still ride their horses down the rustic main street.

Tedeschi Vineyards is the diamond in the center of upcountry Maui, a pleasant place of good cheer, reflecting the wonderful flavors of the island. If you plan a picnic, y stop at the Ulupalakua Ranch Store for supplies. Mornings and late afternoons tend cool at these elevations, so bring a sweater.

For more information about the winery, call 808-878-6058. The mailing address is: Tedeschi Vineyards, P.O. 953, Ulupalakua, Maui, Hawaii 96790. For information : Maui, visit www.gohawaii.com .

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Calculate temperature change with elevation

treelinebackpacker / May 6, 2013

It's no secret that the temperatures high up in the mountains will be lower than that in the valleys. Have you ever set off on a warm summer hike to find the temps at the peak in the 50's or worse?

Avoid these surprises by knowing how to calculate the temperature loss as you climb. Here are the steps involved, and a simple equation to reference.

Now, before we proceed, these are simple approximations. They're not exact, they're not terribly scientific, and they're not meant to be used in such a way. Also, if you do the math using Celcius vs Fahrenheit, you will get slightly different values. Again, these are both simplified calculations designed to be done on the fly, they're not exact. That being said, let's go on.

- **Look up the weather forecast**

Obviously, you need a base to go on. Look up the local area forecast, and see what the high, and low temperatures are going to be.

- **Determine the elevation of reference for the forecast.**

All weather forecasts are referenced to a particular elevation. Using the National Weather Service website you can a detailed forecast, and they'll list the elevation of reference on the page. If that

information isn't available, it's usually the same elevation as your official city elevation. Here, we're at 2,000 feet, and our forecast are all for 2,000 feet.

<http://www.weather.gov/>

- **Determine your peak elevation**

Now you need to know how high up you are going to climb or descend. Reference your topo map, or find these details online. A quick Google with "Mountain (Name) elevation" will normally get you what you need.

- **Do the math**

You will lose an average 3.5 degrees Fahrenheit for every 1000 feet of elevation you gain (or about 1.2 degrees Celsius per ever 100 meters. Some people use 9.8 degrees Celcius per 1000 meters).

If you start out at 1000 feet, and climb to 6000 feet, that's a 5000 foot difference (6000 – 1000 = 5000). So, since you're gaining 5,000 feet in elevation, you'll use a 5 in your calculation. 5,000 feet, times 3.5 degrees. Just drop the (thousand). So, (5 x 3.5 = 17.5 degrees). So roughly, you'll expect to lose at least 17.5 degrees. I always round up to the nearest 5 just to factor in changes in weather that can't be planned for, so here I will assume a 20 degree difference. Simply subtract this number form your expected low, according to the forecast, and you have the lowest expected temperature, short of some crazy weather event.

Ex: The weather man says it's going to be 60 degrees today for the high in your city. Your city is at 6,000 feet. If you're climbing from 6,000 feet to 14,000 feet, That's an 8,000 foot difference. 8 times 3.5 is 28 (8 x 3.5 = 28). You can assume a 30 degree difference after rounding, so it's only going to be 30 degrees max at the top of the mountain (A high of 60 minus your 30 difference)! Remember, that's for the high. Always consider your low temperatures too.

Factors that affect your actual temperature

Some factors change the actual value of these calculations. Cloud cover will trap in more heat, where a clear sky will drop the temperature slightly faster. Cold fronts and air streams may also have an effect, as well as local evaporative cooling. These factors are too numerous to account for, so the equation is designed as a general scenario calculation (after rounding).

Equation

(3.5 x Change in elevation)/1000 = temp loss due to elevation change

or (3.5ΔH=Tf)

Thanks as always for reading! Don't forget to follow our blog for future updates and reviews. It helps us out a lot. If you have any questions, comment below, send us an email, or find us on Twitter or Facebook (links on the right).

Sound-bite: *“They should call this ‘Paniolo (/information/host-culture/how-to-pronounce-hawaiian-words-in-15-minutes/word-definitions/paniolo/) soul food’, brah!”*

This is a good side-trip to take after a Haleakala Crater (<http://mauiguidebook.com/camping/haleakala-crater>) sunrise trip, or during a planned Upcountry exploration day. If you take the back side of Haleakala (<http://mauiguidebook.com/adventures/haleakala-backside-kipahulu-to-ulapapakua/>) to return from Hana, you will pass through starting in Ulupalakua. However I suggest that visitors plan a different day to come this way since there are two places on this route that are well worth a special trip – and they both close at 5pm. (You’ll likely pass though after 5pm if you come through here from Hana.) Those stand-out stops are Grandma’s Coffee House and Tedeschi Winery.

(16.8 mm)

Grandma’s Coffee House

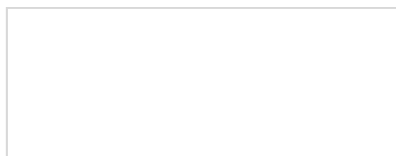
GPS Coordinates:



20.705341,-156.356644

Grandma’s coffee house is in the sleepy town of Keokea. Don’t blink your eyes, or you might miss it. Grandma’s stands with a few other stores across from the entrance road to Kula Hospital. Stores here include an old-time gas station, art gallery and an old, no-nonsense country general store (simply called “Henry Fong Store.”) *Side Note: Fong’s is a good place to grab some snacks if you decide you might continue past the Winery. If general-store fare is not your preference (or you decide later) there is also the more upscale Ulupalakua Store across the street from the winery.*

Grandma’s is a rustic country coffee house and restaurant that follows an age-old formula from simpler times: rotate a menu of great food, prepared by nice people, and infuse some genuine heart and soul – and you’ve got yourself a place people will come to spend time in. Grandma’s is unassuming and authentic: with fresh local-grown organic coffee (that *they* grow) roasted in-house, home-style food that is as filling as it is absolutely delicious – and an assortment of terrific baked goods to tempt you. In a day and age where “home made” is plastered all over factory-made goods – “home-made” really does take on the old meaning and describes Grandma’s better than anything. And maybe that is because Grandma’s Coffee house has been a neighborhood fixture for over 90 years, and across four generations. Grandma’s still primarily serves friends, family and neighbors – and it shows.



Between
Grandma’s and
the Tedeschi
Winery is the



The Ulupalakua Store across from the winery

larger area called Ulupalakua. It is verdant land that has stunning views of the countryside and the coastal resort areas of South Maui below.

Frequently, in the afternoons, clouds blow through so low you might just feel the urge to duck! This is part of a leeward (/information/host-culture/word-definitions/leeward/) wind corridor above Makena where redirected trade winds carry clouds up onto the mountainside. Lush native cloud forests once covered vast swaths of land here, but are now restricted to areas that are inaccessible to cattle, goats and pigs. Much of the land is picturesque rolling hills of green pastureland, with purple jacaranda among the trees dotting the landscape. Haleakala and Ulupalakua Ranches comprise 50,000 acres of land that cover much of this side of the island. Cattle, sugar and other agricultural operations have kept this land in production since the 1800's.

There are many stunning views of neighbor islands, the valley that bridges Haleakala and West Maui, and the blue ocean on both sides of the isthmus (/host-culture/how-to-pronounce-hawaiian-words-in-15-minutes/word-definitions/isthmus/).

Dinner on the Way Back Down the Mountain

Depending on your timing back down the mountain, this will likely be a great day to make reservations at the Haliimaile General Store
([http://maps.google.com/maps/ms?](http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&ll=20.862982,-156.351757&spn=0.11854,0.264187&t=h&z=13&msid=108871766490165910977.00047449fb98ff1dd9f81)

[ie=UTF8&hl=en&msa=0&ll=20.862982,-156.351757&spn=0.11854,0.264187&t=h&z=13&msid=108871766490165910977.00047449fb98ff1dd9f81](http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&ll=20.862982,-156.351757&spn=0.11854,0.264187&t=h&z=13&msid=108871766490165910977.00047449fb98ff1dd9f81)

In Haliimaile, halfway on your way back down Haleakala Hwy – this is an excellent top-quality restaurant at fairly reasonable prices that folks staying in the resort towns may otherwise miss.

(~15* mm) Tedeschi Winery & Ulupalakua Store (* approx. – markers absent & switch here.)

GPS Coordinates: 20.649170,-156.398117

The Tedeschi Winery grounds have much history, and were once a large estate called the Rose Estate. The wine tasting room is open 10:00-5:00 and was originally constructed for King Kalakaua who was a frequent visitor to Rose. The grounds around the Kalakaua Cottage have beautiful views and are well groomed and planted with abundant flowers, shrubs, flowering vines and stately trees. Tedeschi is very welcoming with free tours of the grounds and winery daily (10:30, 1:30 and 3:00.) There are also picnic tables to enjoy a lunch or a snack you may have brought. (MG article on Tedeschi Winery (<http://mauiguidebook.com/upcountry/activities-upcountry-maui/ag-tours-upcountry-maui/teseschi-winery/>))

As you may have already surmised, you can also continue past the Winery and Ulupalakua and see the back side of Haleakala (<http://mauiuidebook.com/adventures/haleakala-backside-kipahulu-to-ulapapakua/>) (fittingly, backwards!)

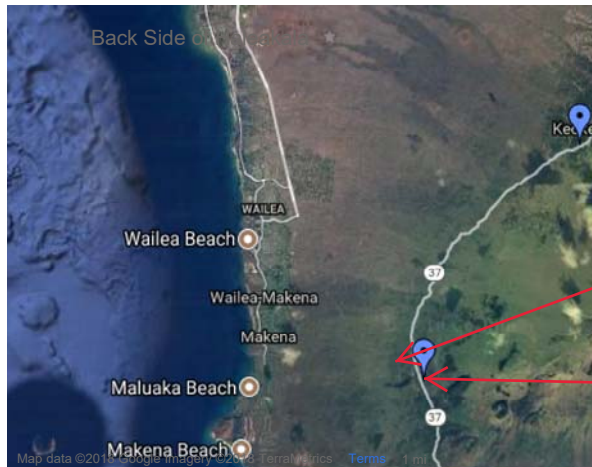
Key Info:

Location: Kula Road becomes Ulupalakua Road, Upcountry (aka Hwy (/information/historical-geological-tidbits/hwy/) 37)

Get directions ([http://maps.google.com/maps?](http://maps.google.com/maps?f=d&source=s_d&saddr=&daddr=Tedeschi+Winery+%4020.64917,-156.398116&geocode=&hl=en&mra=mi&sll=20.650314,-156.39641&sspn=0.014838,0.033023&ie=UTF8&t=h&z=16)

f=d&source=s_d&saddr=&daddr=Tedeschi+Winery+%4020.64917,-156.398116&geocode=&hl=en&mra=mi&sll=20.650314,-156.39641&sspn=0.014838,0.033023&ie=UTF8&t=h&z=16)

4020.64917,-156.398116&geocode=&hl=en&mra=mi&sll=20.650314,-156.39641&sspn=0.014838,0.033023&ie=UTF8&t=h&z=16)



Grandma's Coffee House--Keokea

Proposed AVA

Tedeschi Winery

View Back Side of Haleakala ([http://maps.google.com/maps/ms?](http://maps.google.com/maps/ms?ie=UTF8&hl=en&t=h&msa=0&msid=108871766490165910977.0004721665d25b5054e69&ll=20.679205,-156.377335&spn=0.118685,0.264187&source=embed)

[ie=UTF8&hl=en&t=h&msa=0&msid=108871766490165910977.0004721665d25b5054e69&ll=20.679205,-156.377335&spn=0.118685,0.264187&source=embed](http://maps.google.com/maps/ms?ie=UTF8&hl=en&t=h&msa=0&msid=108871766490165910977.0004721665d25b5054e69&ll=20.679205,-156.377335&spn=0.118685,0.264187&source=embed))

in a larger map

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[Regions and Appellations USA Hawaii](#) Ulupalakua

Ulupalakua Wine



An Ulupalakua wine label

Ulupalakua is the only wine sub-region of Hawaii, an offshore US archipelago state in the central Pacific Ocean. Ulupalakua is located on the second-largest Hawaiian island, Maui, on the slopes of the dormant Haleakala volcano. The only winery operating on any scale here is Tedeschi Vineyards' Maui winery, part of the Ulupalakua Ranch site, which makes both grape and pineapple wines.

Ulupalakua Ranch sits at an [altitude](#) of almost 2000ft (610m) and its vineyards are planted on the mineral-rich, free-draining volcanic soils which make up most of the Hawaiian islands. Very few wine regions in the world have anything like this maritime-influenced, volcanic [terroir](#), with the obvious exception of northern [Corsica](#) and certain parts of [New Zealand](#).

[Symphony](#) is the key grape variety currently used to make Hawaiian wine. It is a cross between [Muscat of Alexandria](#) and [Grenache Gris](#), both of which are at home in hot climates such as southern [France](#) and the eastern Mediterranean. The Hawaii wines made from Symphony grapes are typically slightly sweet and very fruit-driven, with marked floral notes.

The consumer base for Ulupalakua wine is almost entirely domestic, limited both by geography and trade restrictions, although reciprocal trading agreements with other states are now in force.

Last updated 13-Jun-2014
Where is it?

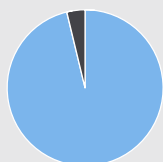


Map data ©2018 Google Imagery ©2018 NASA, TerraMetrics

Google

What's available?

Click chart for more info



● Fruit and Spiced Wine 96%
● Rare Red Blend 4%

Most Popular Ulupalakua Wine

Based on search frequency, updated monthly

Wine Name	Grape	Popularity	Score	Avg Price
Tedeschi Vineyards Maui's Winery Maui Blanc Pineapple Wine, Hawaii, USA	Fruit and Spiced Wine	19,748 th		\$13
Tedeschi Vineyards Hula O Maui Sparkling Pineapple Wine, Hawaii, USA	Fruit and Spiced Wine	43,342 nd		\$23
Tedeschi Vineyards Maui's Winery Ulupalakua Red, Hawaii, USA	Rare Red Blend	130,999 th		\$15

To see how Wine-Searcher uses average pricing and professional wine critic scores on this page, please see [Average Wine Prices](#) and [Wine Scores](#). To find out about popularity, please see [Wine Ranks](#).



>

12901 Kula Hwy Kula, HI 96790

2 beds 2.5 baths 966 sqft

This property is a genuine Ulupalakua gem! A perfect, stylish residence on 2.5 acres, most of which has well-established orchards and gardens. The property is surrounded by 11,051 acres of Ulupalakua Ranch Land. It is conveniently located along Kula Hwy. only 3 miles from Keokea Village. The complete renovations done in 2008 included modernizing the kitchen and bathrooms with exquisite granites and hardwoods as well as high quality fixtures and appliances and many special features. The flooring is fine bamboo throughout. There is a perfect, cozy breakfast/dining nook and a gas fireplace. The 800sf wrap around deck with a deck warmer above the dining area is where meals, meetings

and parties are very enjoyable with the expansive view west including the other nearby islands and of course the sunsets! The unique outdoor bathing pavilion includes a tub for two and a rain shower with views that lead your eyes up the verdant mountain of Haleakala Crater as you bathe. Step around the corner and you'll find a lava fire pit. Mesmerizing flames jump out of the lava as you relax in a comfortable seating area made for conversation under the stars. There are bedrooms on the ground level; a guest room a project

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