

Layer Name: 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline

File Name: aglanduse_2020_haw.shp

Layer Type: Polygon

Status: Complete

Geog. Extent: Island of Hawaii

Projection: Universal Trans Mercator, Zone 4 (Meters)

Datum: NAD 83 HARN (** see below)

Description: The 2015 Hawaii Statewide Agricultural Land Use Baseline layer was created to provide a snapshot of contemporary commercial agricultural land use activity in Hawaii. The purpose of this layer was to help define the areas, circumstances, and resources that drive the agricultural production taking place throughout the state.

Source: The University of Hawaii at Hilo Spatial Data Analysis & Visualization (SDAV) Laboratory in conjunction with the Hawaii State Department of Agriculture, 2021. <https://hdoa.hawaii.gov/salubreports/>

Please acknowledge Perroy, R., & Collier, E. (2021). *2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline*. Hawaii State Department of Agriculture, as a source when this data is used in the preparation of reports, papers, publications, maps, and other products.

History: The 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline layer was created to provide a snapshot of contemporary commercial agricultural land use activity in Hawai'i. It is based upon an assemblage of geospatial datasets, primarily high-resolution WorldView-2 and WorldView-3 satellite imagery (2018 – 2020) used as a base layer for digitization. Additional datasets used in this work include GIS layers provided by the state of Hawai'i, Office of Planning Statewide GIS Program and other data provided by major land owners and managers. County Real Property Tax and Agricultural Water Use data were also used to identify commercial farm operations. Not all properties that receive County agricultural tax assessment rates or reduced water cost for agricultural uses were mapped due to the small scale of some of their operations. These data sources were used to verify mapped commercial farms and identify operations that might have been missed using the imagery alone.

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Attributes:	Polygons:
	Crops_2020
	Crop Category
	Aquaculture
	Banana Coffee
	Commercial Forestry
	Dairy
	Diversified Crop
	Flowers/Foliage/LandscapeMacadamia
	Nuts
	Papaya
	Pasture
	Sugar
	Taro
	Tropical Fruits
	Island
	Acreage
	Island
	Acreage

For more information about this dataset, please refer to the full metadata, found in AgLandUse2020.xml and to AgLandUse2020_protocols.pdf.

Contact: Hawaii Statewide GIS Program
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email: gis@hawaii.gov

Layer Name: 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline

File Name: aglanduse_2020_kau.shp

Layer Type: Polygon

Status: Complete

Geog. Extent: Island of Kauai

Projection: Universal Trans Mercator, Zone 4 (Meters)

Datum: NAD 83 HARN (** see below)

Description: The 2015 Hawaii Statewide Agricultural Land Use Baseline layer was created to provide a snapshot of contemporary commercial agricultural land use activity in Hawaii. The purpose of this layer was to help define the areas, circumstances, and resources that drive the agricultural production taking place throughout the state.

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Attributes: Polygons:

Crops_2020

Crop Category

Aquaculture
Banana Coffee
Commercial Forestry
Diversified Crop
Flowers/Foliage/Landscape
Pasture
Seed Production
Taro
Tropical Fruits

Island
Acreage

Island
Acreage

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Layer Name: 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline

File Name: aglanduse_2020_mau.shp

Layer Type: Polygon

Status: Complete

Geog. Extent: Islands of Maui, Molokai and Lanai

Projection: Universal Trans Mercator, Zone 4 (Meters)

Datum: NAD 83 HARN (** see below)

Description: The 2015 Hawaii Statewide Agricultural Land Use Baseline layer was created to provide a snapshot of contemporary commercial agricultural land use activity in Hawaii. The purpose of this layer was to help define the areas, circumstances, and resources that drive the agricultural production taking place throughout the state.

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Attributes:

Polygons:

Crops_2020

Crop Category

Aquaculture

Banana

Coffee

Commercial Forestry

Diversified Crop

Flowers/Foliage/Landscape

Macadamia Nuts

Papaya

Pasture

Pineapple

Seed Production

Taro

Tropical Fruits

Island

Island

Acreage

Acreage

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Layer Name: 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline

File Name: aglanduse_2020_oah.shp

Layer Type: Polygon

Status: Complete

Geog. Extent: Island of Oahu

Projection: Universal Trans Mercator, Zone 4 (Meters)

Datum: NAD 83 HARN (** see below)

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	Aquaculture
	Banana Coffee
	Commercial Forestry
	Diversified Crop
	Flowers/Foliage/Landscape
	Macadamia Nuts
	Papaya
	Pasture
	Pineapple
	Seed Production
	Taro
	Tropical Fruits
	Island
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2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline

Metadata and Crop Mapping Protocols

The 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline layer was created to provide a snapshot of contemporary commercial agricultural land use activity in Hawai'i. It is based upon an assemblage of geospatial datasets, primarily high-resolution WorldView-2 and WorldView-3 satellite imagery (2018 – 2020) used as a base layer for digitization. Additional datasets used in this work include GIS layers provided by the state of Hawai'i, Office of Planning Statewide GIS Program and other data provided by major land owners and managers. County Real Property Tax and Agricultural Water Use data were also used to identify commercial farm operations. Not all properties that receive County agricultural tax assessment rates or reduced water cost for agricultural uses were mapped due to the small scale of some of their operations. These data sources were used to verify mapped commercial farms and identify operations that might have been missed using the imagery alone.

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Sponsor of the 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline layer. Funding for the 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline layer was provided by the Hawai'i State Department of Agriculture.

Authors of the 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline layer. The University of Hawai'i at Hilo Spatial Data Analysis and Visualization (SDAV) Laboratory carried out the work under the direction of Dr. Ryan Perroy and Cartographer and Geospatial Analyst Eszter Collier. Erin Weingarten, Hunter Heaivilin, and Ben Nyberg provided additional project support.

No Warranty. We have made every effort to make all images, maps, graphs, data, and other information provided as a result of this project as accurate and error-free as possible. However, we do not guarantee the accuracy of any images, maps, graphs, data, or other information. All content is provided without warranty of any kind and is not intended for any regulatory use whatsoever.

The following protocols were used to generate the 2020 Update to the Hawai‘i Statewide Agricultural Land Use Baseline layer.

- ❖ This project focused on commercial agricultural operations with a three acre minimum crop mapping area. Understanding the importance of smaller scale producers to Hawai‘i’s agricultural community, commercial operations less than three acres were included where they could be reasonably identified.
- ❖ Mapped units follow actual cropped areas as identified in satellite imagery, not TMK parcel boundaries.
- ❖ Agricultural lands which did not display actual vegetation growth but appeared to be part of an active agricultural rotation (freshly tilled fields, etc.) were included in acreage summaries.
- ❖ For papaya and other crops that rotate every three to four years, mapping efforts were focused on active production areas and did not include fallowed fields.
- ❖ Packing or processing facilities and in-field access roads were generally included in acreage summaries.
- ❖ Homes, reservoirs, un-farmable gulches and major roadways separating field areas were not mapped.
- ❖ “Agri-scaping” of private residences was not mapped.
- ❖ Small backyard orchards and what appear to be home use vegetable gardens were not mapped
- ❖ Equestrian uses, including arenas, boarding and riding facilities, were not mapped.
- ❖ Rooster cultivation was not mapped.
- ❖ Piggeries were not mapped.
- ❖ Poultry farms were not mapped.
- ❖ Industrial meat processing facilities were not mapped.

Crops categories and considerations

- **Aquaculture** includes active shrimp farms, working fishponds, algae raceways, and research/production facilities.
- **Banana** includes fields in contiguous plantings larger than two to three acres. Throughout the state, bananas are also cultivated in gulches, along farm boundaries and in small patches within smaller, diversified farm operations. These smaller mixed plantings are generally incorporated into the surrounding farm and labeled as Diversified Crop.
- **Coffee** includes both larger plantation-type scale operations and smaller farm plantings larger than two acres in coffee growing regions like Kona, Ka‘u, and elsewhere. The North and South Kona region on Hawai‘i Island were difficult to map accurately based on a practice some farmers have adopted to plant both macadamia nuts and coffee on the same ground, making it challenging to confidently discern these coffee- macadamia crop boundaries from satellite imagery.
- **Commercial Forestry** plantings include both short and long rotation tree crops. Plantings include eucalyptus and other species intended for timber, fiber or energy production and higher value hardwoods like koa and mahogany that are planted for eventual commercial harvest and not part of native forest restoration efforts

- **Dairy** includes core milking and on-farm processing facilities and the surrounding pastures and crop lands under active dairy use.
- **Diversified Crops** includes a wide range of products that are grown either outdoors or in greenhouses. The category includes many of Hawai‘i’s small farms and much of its local, fresh vegetables including tomato, cucumbers, leaf crops, beans, and asparagus. This category also includes smaller plantings such as banana, tropical fruit, papaya, and coffee that were too small to map out individually. Also included in the category are export crops such as Okinawan sweet potato, basil, and Asian spices.
- **Flowers, Foliage and Landscaping** includes a wide variety of products including hot house/shade cloth grown orchids, anthuriums, tropical flowers, potted nursery plants, field stock, sod farms, and landscape trees.
- **Macadamia Nut** includes orchards that appear to be actively maintained and harvested. Orchards range from hundreds of acres in South Kona, Ka‘ū and Puna to small and mid-size plantings throughout Hawai‘i Island and a new site on O‘ahu.
- **Papaya** are mapped in areas where significant commercial papaya production occurs. Mapping efforts focused on just those lands that appeared to be planted and in active production. Fallow lands that might be available for future papaya planting were not mapped but are an important part of what the papaya industry needs to produce in a sustainable fashion. Smaller plantings of papaya on mixed-crop farms are mapped as Diversified Crops.
- **Pasture** includes areas in active commercial cattle operation where fencing is apparent and water troughs and/or cattle trails can be identified. Small pasture plots in diverse rural homestead areas were not the focus of this mapping effort but were included where larger parcels and contiguous pasture areas were present. Lands that were formerly in pasture use but have now been purchased by the military, the National Park Service, or withdrawn from pasture in favor of native forest restoration or other uses were not included in the pasture layer. Range lands that are fenced and grazed only seasonally are mapped as pasture lands.
- **Pineapples** include areas planted in large to mid-size operations primarily on ‘Oahu. Smaller pineapple plantings that are mixed within smaller diversified farm operations are mapped and labeled as Diversified Crop.
- **Seed Production** includes all arable lands in use by the seed companies at the time of this survey. Net acres actually planted in corn, or other seed crops, will be substantially less than the gross acres depicted. The industry estimates that they use approximately 25% of their farmable land at any time for growing crops. Areas depicted include in-field roads, pollen drift buffers and areas managed for future crop rotation.
- **Sugar** includes areas planted in sugarcane.
- **Taro** includes crop grown only in wetland settings. Dry land taro is included in the Diversified Crop category.
- **Tropical Fruit** includes a range of products such as rambutan, avocado, longan, lychee, citrus, cacao and other orchard fruit trees, that are planted for commercial harvest. Small backyard orchards were not mapped and are not counted in summary tropical fruit acreage.