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HAWAII AGRICULTURE 2002

Farm Revenue Hits 11 Year High

Farm level revenue for 2002 totaled \$535.9 million, 2 percent greater than the previous year. Year-over-year gains for sugarcane and pineapple, along with record highs for several of the “diversified” commodities lifted revenues to the highest level since 1991.

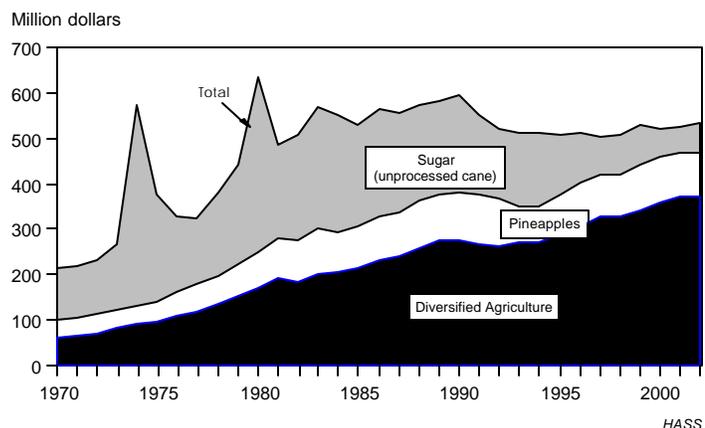
Highlighting gains for diversified agriculture were record years for flowers and nursery products, seed crops, aquaculture, and herbs. Among other commodities showing gains from 2001 were coffee, cattle, hogs, and selected vegetable crops. Some of the crops experiencing declines were bananas, milk, ginger root, eggs, macadamia nuts, and papayas. The aggregate total for diversified commodities (everything other than sugarcane and pineapple) was \$370.9 million, fractionally higher than the previous year. Drought and low prices were partially responsible for lower production of some crops, notably orchard crops.

The equivalent farm value for pineapple (does not include the processed value added by processing) increased to \$100.6 million, 4 percent above the previous year. Although production was slightly lower, more higher-valued fresh sales boosted revenue.

The equivalent value of sugarcane (does not include the processed value of raw sugar) was pegged at \$64.3 million, 11 percent above 2001, and the first year-over-year gain since 1998.

Farm level values shown in this publication are an important measure of production agriculture, but they don't truly reflect the total contribution of agriculture to the State and county economies. For a better understanding of the overall picture, refer to “Agriculture’s Contribution to Hawaii’s Economy-An Update” (CTAHR Economic Issues EI-3b, Feb. 2002), a publication prepared jointly by the College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa, and the Hawaii State Department of Agriculture.

Cash Receipts of Agricultural Commodities, State of Hawaii, 1970-2002



Variable Weather Brings Some Relief

Variable weather combined with occasional downpours provided the State with some relief from the previous year's drought conditions. Warm, sunny days with passing showers and cool evening temperatures dominated the State's weather for 2002. Unlike last year, the frequent beneficial showers and occasional downpours kept pastures and non-irrigated orchards in generally good condition.

January-April

Westerly winds during the first two weeks in January brought warm, dry days with passing showers, and cool evening temperatures to all islands. A passing winter storm towards the end of the third week brought moderate to heavy showers and gusty winds during the remainder of the month. February experienced more variable weather with moderate to heavy showers when a low pressure trough stalled west of the islands at the beginning of the month. Despite warm, humid days, evenings were cool and wet, becoming cold at times. A cold front at the beginning of March brought strong trade winds and frequent thunder showers with cool evening and early morning temperatures. Variable weather returned during the second half of the month as a strong high pressure system brought moderate trade winds and scattered mountain showers during the evening and early morning hours. Variable weather and southerly winds occurred throughout April. Winds were gentle with generally sunny, dry conditions. Scattered, light showers fell mainly in the upper elevations, making heavy irrigation necessary for crop progress.

May-September

A high pressure system in the northeast brought variable weather throughout May. Days were mostly sunny with light to moderate showers in various locations. Showers became

heavy in Ka'u, causing farmers to use alternate routes. Despite excessive moisture with minor flooding, the rains were generally a welcome relief from basically dry weather. June brought more fair to good weather for agriculture. Days were mostly sunny with scattered, windward and mountain showers, while nights were cool and clear. Trade winds were breezy and cool. Regular spraying for insect and diseases was necessary for crop progress. Warm, sunny weather with passing showers benefitted agriculture in July. However, heavy irrigation was still necessary in areas not exposed to beneficial showers. Spraying for insects and diseases remained necessary. The remnants of tropical storm Douglas brought generally warm, humid weather during August. Winds were light with occasional strong gusts, becoming southerly at times. Light showers were confined mainly to windward and mountain areas. Leeward and south facing areas were dry. The drying of green areas caused a tremendous increase in Maui's Upcountry rodent population. Crop damage varied according to location. Close monitoring and restricted use of zinc phosphate baits were used to combat this problem. The remnants of Hurricane Fausto brought more hot, humid weather during September. Windward showers remained light, making heavy irrigation necessary. Pastures and orchards had adequate soil moisture. Fair weather returned briefly at mid-month, bringing cool trade winds and light to moderate showers. However, a northern cold front and low pressure system weakened trades and brought more hot, dry weather during the latter half of the month. Regular spraying became necessary to control insects and diseases. Rodents continued to plague Maui's farm areas, but less than in previous weeks. However, bird damage to young and mature plantings increased.

October-December

Weak winds and hot weather prevailed during the first week of October making heavy irrigation and regular spraying necessary. Except for light to moderate trade winds and slightly cooler temperatures, the second week remained dry with light scattered showers in the upper elevations. Unstable weather during the third week brought frequent clouds and moderate to heavy showers throughout the State. Irrigation was suspended in most areas, but regular spraying was necessary. Except for minor damage to delicate crops and isolated thunder showers, the rains were generally beneficial. Moderate trade winds and sunshine returned during the last week of October, allowing fields to dry and growers to resume farm activities. Light to moderate trade winds maintained dry weather throughout the first half of November. Windward and mountain showers were light. Crops were in mostly fair to good condition from the previous weeks' rains, but pastures were drying. A stalled frontal system over the central islands brought trade showers to windward and mountain areas. Oahu and Kauai received some heavy showers and strong winds. Banana trees in exposed areas suffered leaf shredding and toppling due to wet soil and gusty winds. Weak trade winds continued and brought more dry weather, during the month's last week. Windward and mountain showers were sporadic. Crop condition was mostly fair to good, but some areas were dry. A cold northern front and storm system brought various amounts of rainfall to all islands during the middle of December's first week. Showers benefitted all areas, but more rain was needed to maintain crop condition. Except for more weak trades and another passing storm at mid-month, the remainder of the 2002 weather picture was generally dry.

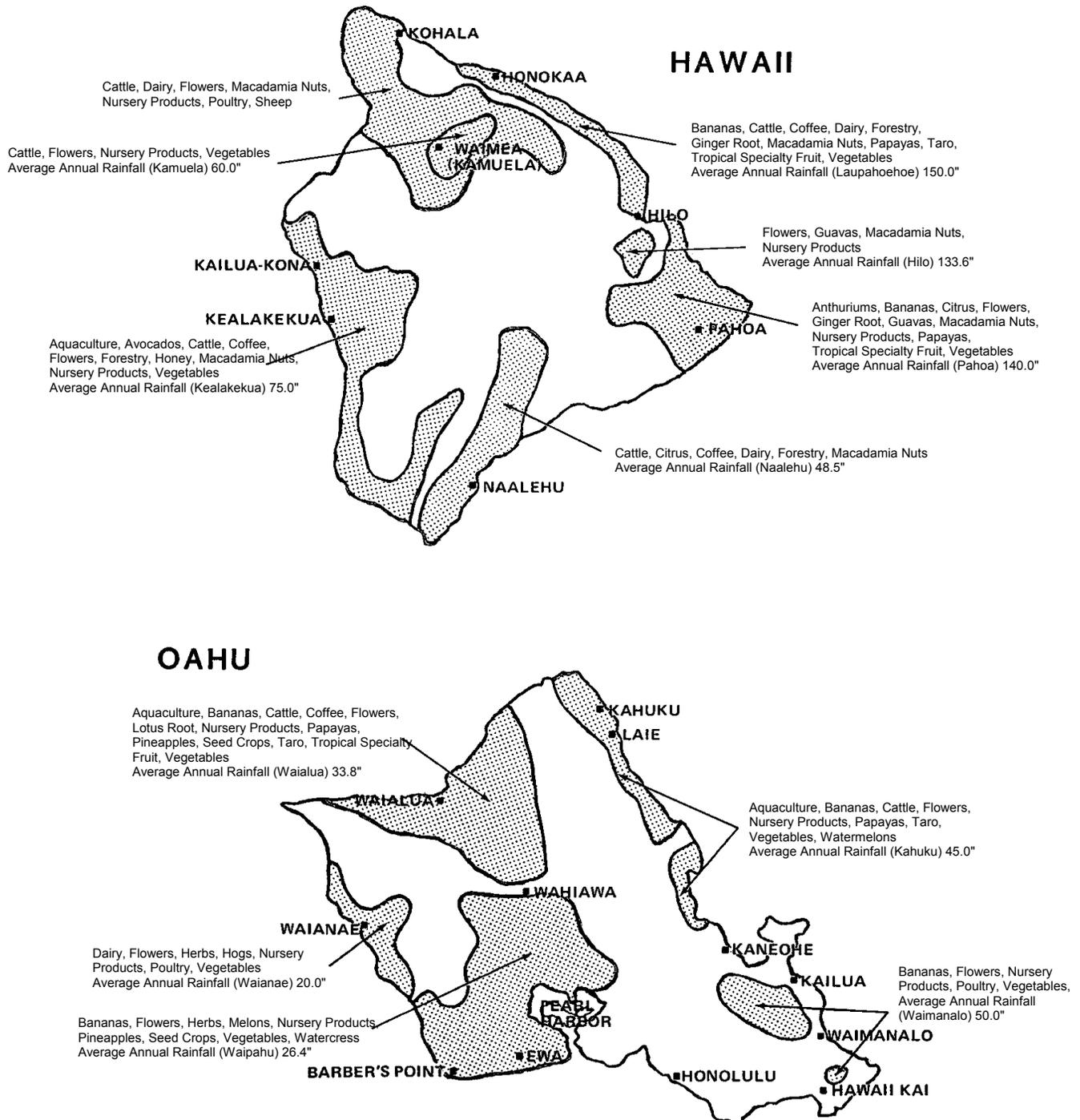
WEATHER: Precipitation, selected stations, State of Hawaii, 2002

STATIONS	Year & normal	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	% Annual normal
ISLAND OF HAWAII															
Hilo International Airport	Normal	9.1	12.9	13.7	12.9	10.0	6.6	9.5	10.9	7.4	11.0	13.8	15.8	133.6	
	2002	26.14	19.00	10.76	7.24	14.96	7.16	6.98	13.65	8.14	6.52	2.86	10.49	133.90	100.2
Kamuela (HI86)	Normal	6.6	6.0	7.9	6.9	4.0	2.2	3.7	4.1	2.2	3.3	5.8	7.3	60.0	
	2002	6.74	14.63	9.09	1.73	2.42	4.62	7.23	2.80	1.79	2.96	.88	3.03	57.92	96.5
Kealahou (HI84)	Normal	4.7	3.4	5.6	6.2	7.7	8.2	8.7	8.3	8.2	6.2	4.4	3.4	75.0	
	2002	1.96	4.55	1.15	1.60	7.33	5.66	1.94	6.37	4.69	3.74	1.41	.06	40.46	53.9
Laupahoehoe	Normal	13.5	13.2	19.5	18.9	11.7	6.2	10.0	12.4	6.9	9.3	13.6	14.8	150.0	
	2002	15.10	19.45	16.83	5.76	6.31	6.16	9.96	9.92	5.97	4.09	3.33	6.44	109.32	72.9
Pahala (HI85)	Normal	7.7	6.1	6.3	5.0	3.8	2.2	2.1	3.3	3.4	4.2	5.5	5.4	55.0	
	2002	22.50	2.39	2.09	7.91	12.82	.76	.55	.32	1.83	1.20	.11	1.59	54.07	98.3
Pahoa (HI83)	Normal	13.9	10.9	14.7	13.9	10.5	7.1	9.8	10.6	9.2	11.5	13.3	14.6	140.0	
	2002	24.25	13.51	10.57	4.43	12.36	8.17	7.76	12.63	10.72	7.91	2.11	13.06	127.48	91.1
ISLAND OF KAUAI															
Anahou (HI48)	Normal	6.8	4.4	6.0	4.6	3.2	1.6	2.5	2.5	2.0	5.1	5.4	5.9	50.0	
	2002	5.52	1.80	10.95	1.74	5.54	1.60	1.26	2.72	1.80	4.81	2.91	1.58	42.23	84.5
Hanalei (HI45)	Normal	11.3	10.1	14.0	12.7	8.1	5.3	8.6	6.3	4.7	7.0	12.2	9.7	110.0	
	2002	14.99	4.10	8.63	4.73	9.36	3.86	5.30	6.59	2.82	3.08	6.14	4.37	73.97	67.2
Omao (HI51)	Normal	6.9	4.5	5.5	5.2	4.2	3.4	4.7	4.6	3.7	4.7	5.9	6.7	60.0	
	2002	8.75	2.34	9.84	2.04	--	3.05	2.76	2.51	2.46	1.55	3.84	1.78	40.92	68.2
ISLAND OF MAUI															
Hana (HI61)	Normal	9.5	6.8	9.5	9.0	6.2	3.8	5.6	5.6	5.4	7.0	8.7	6.1	83.2	
	2002	16.53	3.03	6.41	2.80	--	1.19	--	--	.51	--	.76	--	31.23	37.5
Kula (HI65)	Normal	4.9	3.7	2.8	2.8	2.1	1.1	1.4	1.9	2.0	1.4	2.5	3.4	30.0	
	2002	4.15	.64	3.29	2.64	4.02	.53	.54	1.30	.20	5.82	.89	.24	24.26	80.9
Wailuku (HI66)	Normal	5.2	3.8	3.6	3.0	1.2	.4	.6	.7	.6	1.7	2.9	4.3	28.0	
	2002	--	3.05	2.25	1.12	2.26	.05	.56	.15	0	5.25	1.48	1.23	17.40	62.1
ISLAND OF OAHU															
Kahuku (HI09)	Normal	6.3	4.2	5.3	4.0	2.5	1.8	2.2	2.6	2.2	4.0	4.6	5.3	45.0	
	2002	6.49	1.82	2.07	4.04	6.53	1.41	1.04	.71	1.42	3.23	2.14	1.21	32.11	71.4
Waiialua (HI04)	Normal	5.6	3.9	3.8	2.8	1.7	.9	1.3	.8	1.1	2.7	4.2	5.0	33.8	
	2002	4.74	1.20	2.81	1.31	5.07	.19	.23	.50	.43	2.99	1.67	.19	21.33	63.1
Waianae (HI17)	Normal	3.8	2.3	2.5	1.6	.7	.3	.3	.7	.7	1.8	2.0	3.3	20.0	
	2002	3.28	.64	2.96	.48	2.35	0	0	.30	.31	3.63	.57	.07	14.59	73.0
Waimanalo (HI13)	Normal	8.1	4.9	5.6	4.9	3.1	1.5	1.7	2.0	1.8	4.3	4.9	7.2	50.0	
	2002	4.86	2.77	3.55	1.96	1.96	.91	.83	1.09	.90	2.64	1.88	.38	23.73	47.5

-- = Missing data; incomplete.

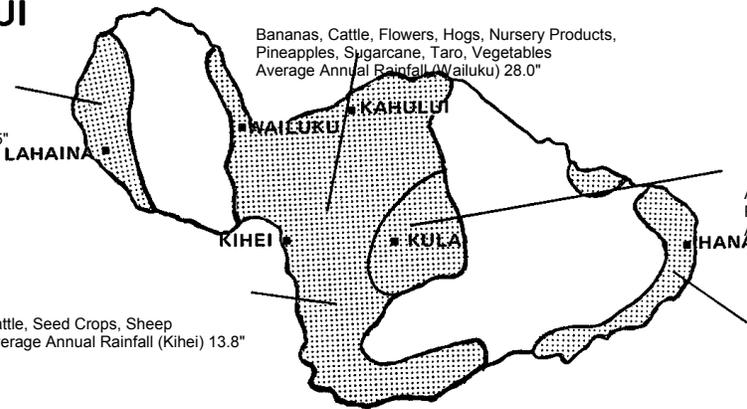
Source: U. S. Department of Commerce, National Oceanic and Atmospheric Administration. Most rainfall stations were selected from the National Weather Service's hydronet system of automated gages, and those data have not been quality controlled to date, and therefore are not certified by the National Weather Service.

MAJOR AGRICULTURAL AREAS, STATE OF HAWAII, 2002



MAUI

Bananas, Nursery Products, Papayas,
Pineapples, Vegetables
Average Annual Rainfall (Lahaina) 15.5"



Bananas, Cattle, Flowers, Hogs, Nursery Products,
Pineapples, Sugarcane, Taro, Vegetables
Average Annual Rainfall (Wailuku) 28.0"

Avocados, Bananas, Cattle, Flowers, Hogs,
Papayas, Tropical Specialty Fruit, Vegetables
Average Annual Rainfall (Kula) 30.0"

Cattle, Seed Crops, Sheep
Average Annual Rainfall (Kihei) 13.8"

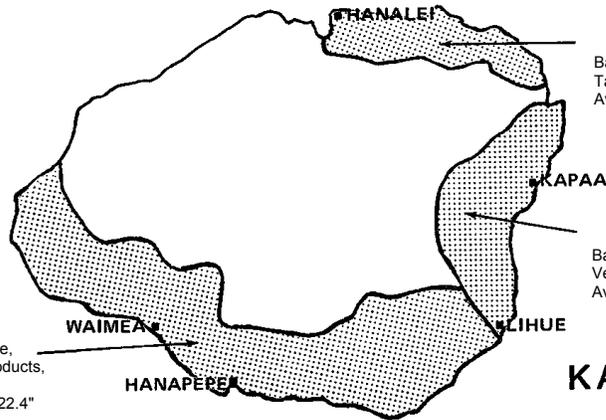
Bananas, Cattle, Flowers, Herbs,
Hogs, Nursery Products, Tropical
Specialty Fruit, Taro, Vegetables
Average Annual Rainfall (Hana) 83.2"

Aquaculture, Bananas, Cattle, Coffee, Flowers,
Hay, Hogs, Nursery Products, Papayas,
Seed Crops, Vegetables
Average Annual Rainfall (Molokai Airport) 26.5"

MOLOKAI



Cattle
Average Annual Rainfall (Lanai Airport) 17.2"

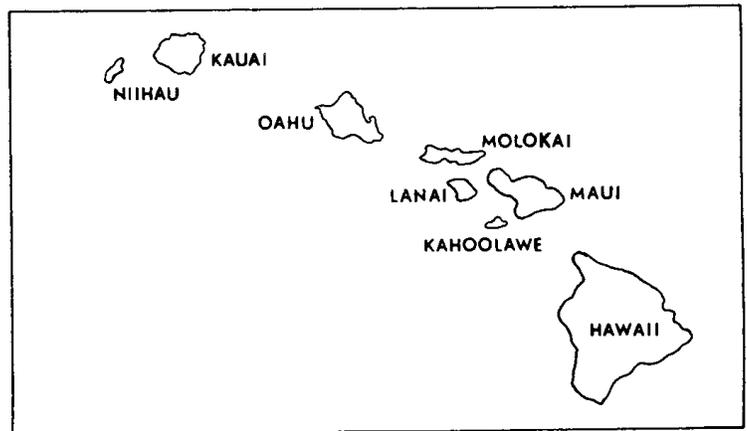


Bananas, Cattle, Guavas, Papayas,
Taro, Tropical Specialty Fruit
Average Annual Rainfall (Hanalei) 110.0"

Bananas, Cattle, Flowers, Nursery Products,
Vegetables
Average Annual Rainfall (Wailua) 84.2"

Aquaculture, Banana, Cattle, Coffee,
Flowers, Hogs, Honey, Nursery Products,
Seed Crops, Sugarcane, Taro
Average Annual Rainfall (Kekaha) 22.4"

KAUAI



SUMMARIES

Top 20 commodities, State of Hawaii, 2001-2002

Commodity ¹	Rank		Value of production	
	2001	2002	2001	2002
	--- Number ---		--- 1,000 dollars ---	
Pineapples (fresh equivalent)	1	1	96,337	100,616
Sugarcane (unprocessed)	2	2	57,800	64,300
Seed crops	3	3	45,000	48,700
Macadamia nuts	4	4	33,040	29,640
Coffee	6	5	19,600	23,250
Milk	5	6	26,546	22,467
Cattle	7	7	18,007	18,719
Papayas	8	8	14,598	11,924
Algae	10	9	9,684	10,505
Tomatoes	12	10	9,275	9,625
Eggs	11	11	9,640	8,724
Bananas	9	12	10,640	8,385
Palms (potted)	14	13	8,280	7,719
Dendrobium, pots	16	14	6,683	7,336
Dracaena (potted)	13	15	8,443	5,333
Anthuriums	17	16	5,929	4,908
Hogs	18	17	4,514	4,788
Basil	19	18	3,520	4,750
Ginger root	15	19	8,100	4,320
Taro	20	20	3,392	3,294

¹ Floriculture categories include only growers with total sales of \$10,000 or more.

Farm values, State of Hawaii, 1983-2002

Year	Sugar (unprocessed cane)	Pineapples (fresh equivalent)	Diversified agriculture ¹	Total
	1,000 dollars			
1983	266,900	100,376	201,138	568,414
1984	256,200	89,928	204,389	550,517
1985	222,400	90,530	215,719	528,649
1986	233,800	99,720	231,197	564,717
1987	218,000	99,286	240,012	557,298
1988	209,900	107,402	256,660	573,962
1989	210,300	98,310	276,438	585,048
1990	213,800	106,365	275,789	595,954
1991	174,900	107,775	268,707	551,382
1992	153,700	102,100	264,427	520,227
1993	163,000	79,850	271,094	513,944
1994	160,100	78,890	273,826	512,816
1995	127,700	87,360	291,632	506,692
1996	108,100	95,914	307,329	511,343
1997	85,500	91,721	327,484	504,705
1998	² 87,300	92,776	329,886	² 509,962
1999	86,800	101,448	342,846	531,094
2000	² 62,200	101,530	² 358,170	² 521,900
2001	57,800	96,337	370,244	524,381
2002	64,300	100,616	370,937	535,853

¹ Aquaculture included beginning 1993.

² Revised.

Diversified agriculture ranked by value, State of Hawaii, 2001-2002

Commodity	Rank		Value of production			Percent of diversified agriculture	
	2001	2002	2001	2002	Year-to-year percent change	2001	2002
	--- Number ---		----- 1,000 dollars -----			----- Percent -----	
Flowers and nursery products	1	1	88,597	92,069	+4	23.9	24.8
Vegetables and melons ¹	2	2	62,043	61,659	-1	16.8	16.6
Seed crops	3	3	45,000	48,700	+8	12.2	13.1
Macadamia nuts	4	4	33,040	29,640	-10	8.9	8.0
Fruits (excluding pineapples)	5	5	30,190	25,210	-16	8.1	6.8
Aquaculture	7	6	22,200	25,180	+13	6.0	6.8
Coffee	8	7	19,600	23,250	+19	5.3	6.3
Milk	6	8	26,546	22,467	-15	7.2	6.1
Cattle	9	9	18,007	18,719	+4	4.9	5.0
Eggs	10	10	9,640	8,724	-10	2.6	2.4
Hogs	11	11	4,514	4,788	+6	1.2	1.3
Other livestock and crops			10,867	10,531	-3	2.9	2.8
Total			370,244	370,937	0	100.0	100.0

¹ Includes ginger root and herbs.

SUMMARY: Acreage in crop and total farm acreage, by counties, 1998-2002

Year	Sugarcane	Pineapples ¹	Vegetables and melons ^{2 3}	Fruits (excluding pineapples)	Coffee	Macadamia nuts	All other crops ⁴	Total farm acreage ⁵
<i>1,000 acres</i>								
State ⁶								
1998	67.6	21.0	6.6	7.6	7.4	20.2	15.9	1,440
1999	67.0	21.0	8.2	8.0	7.7	19.9	14.9	1,440
2000	60.0	20.7	6.4	7.1	7.9	18.4	7.3	1,440
2001	46.0	20.1	6.5	7.1	8.0	18.0	8.7	1,440
2002	47.5	19.1	6.8	6.5	7.2	18.0	8.2	1,440
Counties:								
Hawaii								
1998	0	*	2.1	4.8	2.8	⁷	2.0	870
1999	0	*	2.3	4.9	3.2	⁷	1.9	870
2000	0	*	1.8	4.1	3.3	⁷	1.7	870
2001	0	*	2.0	4.5	3.4	⁷	2.1	870
2002	0	*	1.8	4.3	3.5	⁷	2.4	870
Honolulu								
1998	0	11.4	2.8	1.6	⁷	⁷	11.0	80
1999	0	11.9	4.3	1.8	⁷	⁷	10.4	80
2000	0	11.6	3.1	1.7	⁷	⁷	2.6	80
2001	0	11.0	3.2	1.5	⁷	⁷	3.4	80
2002	0	10.0	3.6	1.0	⁷	⁷	2.7	80
Kauai								
1998	24.7	*	.1	.9	⁷	⁷	1.0	200
1999	23.7	*	.2	1.0	⁷	⁷	1.1	200
2000	23.1	*	.2	1.0	⁷	⁷	1.3	200
2001	10.6	*	.1	.8	⁷	⁷	1.4	200
2002	10.8	*	.3	.8	⁷	⁷	1.6	200
Maui								
1998	42.9	9.6	1.6	.3	⁷	⁷	1.9	290
1999	43.3	9.1	1.4	.3	⁷	⁷	1.5	290
2000	36.9	9.1	1.3	.3	⁷	⁷	1.7	290
2001	35.4	9.1	1.2	.3	⁷	⁷	1.8	290
2002	36.7	9.1	1.1	.4	⁷	⁷	1.5	290

* = Less than 50 acres.

¹ Land used for pineapple.

² Harvested acreage.

³ Includes ginger root.

⁴ Includes taro, seed corn, feed and forage crops (excluding pineapple feed products), flowers, foliage and nursery products.

⁵ Includes land not in crop and pasture such as farm house lots, roads, woodlots, etc.

⁶ Sum of county estimates may not add to State total due to rounding.

⁷ Data not shown separately to avoid disclosure of individual operations but combined and included in the State total.

SUMMARIES

SUMMARY: Number of crop farms, by counties, 1998-2002

Year	Sugarcane	Pineapples ¹	Vegetables and melons	Fruits (excluding pineapples)	Coffee	Macadamia nuts	Taro	Flowers and nursery products
State								
1998	4	15	880	1,515	610	800	180	745
1999	4	15	1,020	1,373	650	750	190	765
2000	3	15	580	1,254	670	650	185	735
2001	2	15	575	1,059	700	650	170	790
2002	2	15	600	1,099	710	650	150	805
Counties:								
Hawaii								
1998	0	5	432	912	600	²	100	355
1999	0	5	600	805	635	²	100	355
2000	0	5	250	705	650	²	85	335
2001	0	6	270	585	675	²	60	360
2002	0	6	270	593	680	²	50	380
Honolulu								
1998	0	2	280	186	²	²	11	205
1999	0	2	230	174	²	²	12	225
2000	0	2	160	162	²	²	15	205
2001	0	2	160	142	²	²	15	220
2002	0	2	175	149	²	²	10	220
Kauai								
1998	2	3	54	155	²	²	55	40
1999	2	3	45	143	²	²	65	35
2000	2	3	50	156	²	²	70	50
2001	1	5	45	139	²	²	70	60
2002	1	5	55	153	²	²	65	55
Maui								
1998	2	5	114	262	²	²	14	145
1999	2	5	145	251	²	²	13	150
2000	1	5	120	231	²	²	15	145
2001	1	2	100	193	²	²	25	150
2002	1	2	100	204	²	²	25	150

¹ Includes specialty pineapple.

² Data not shown separately to avoid disclosure of individual operations but combined and included in the State total.

SUMMARIES

SUMMARY: Number of livestock operations and total number of farms, by counties, 1998-2002

Year	Cattle ¹	Hogs	Milk	Eggs	Honey	Total (non-duplicated) ²
State						
1998	830	250	50	55	29	5,500
1999	800	230	50	55	28	5,500
2000	800	230	50	55	33	5,500
2001	800	230	50	55	30	5,300
2002	800	230	50	55	29	5,300
Counties:						
Hawaii						
1998	480	80	27	26	18	3,300
1999	470	70	28	28	14	3,300
2000	470	70	28	28	17	3,300
2001	460	70	28	28	14	3,200
2002	460	70	28	28	16	3,200
Honolulu						
1998	50	80	10	17	³	900
1999	60	70	10	15	³	900
2000	60	70	10	15	³	900
2001	60	70	10	15	³	800
2002	60	70	10	15	³	800
Kauai						
1998	120	40	8	4	³ 11	500
1999	100	30	8	4	³ 14	500
2000	100	30	8	4	³ 16	500
2001	110	30	8	4	³ 16	500
2002	110	30	8	4	³ 13	500
Maui						
1998	180	50	5	8	³	800
1999	170	60	4	8	³	800
2000	170	60	4	8	³	800
2001	170	60	4	8	³	800
2002	170	60	4	8	³	800

¹ Includes beef, dairy, and dairy replacement operations.

² Based on farm definition of \$1,000 or more of agricultural sales.

³ Honolulu and Maui combined with Kauai to avoid disclosure of individual operations.

SUMMARIES

SUMMARY: Value of crop sales, by counties, 1998-2002

Year	Sugar (unprocessed cane)	Pineapples (fresh equivalent)	Vegetables, ginger root, herbs, and melons	Fruits (excluding pineapples)	Coffee (parchment)
<i>1,000 dollars</i>					
State					
1998	³ 87,300	92,776	51,149	24,530	24,700
1999	86,800	101,448	56,438	28,525	21,000
2000	³ 62,200	101,530	59,159	31,364	23,055
2001	57,800	96,337	62,043	30,190	19,600
2002	64,300	100,616	61,659	25,210	23,250
Counties:					
Hawaii					
1998	0	*	16,249	14,672	16,100
1999	0	*	18,569	15,546	9,300
2000	0	*	17,910	17,522	15,200
2001	0	*	17,743	18,724	13,175
2002	0	*	13,823	17,868	15,990
Honolulu					
1998	0	64,363	22,098	6,487	⁴
1999	0	73,123	27,419	8,534	⁴
2000	0	72,085	29,982	8,985	⁴
2001	0	69,222	32,601	7,538	⁴
2002	0	70,992	36,533	3,713	⁴
Kauai					
1998	³ 28,600	*	1,047	2,320	⁴
1999	26,600	*	931	3,389	⁴
2000	³ 18,500	*	1,446	3,755	⁴
2001	12,900	*	1,574	3,007	⁴
2002	13,000	*	1,659	2,415	⁴
Maui					
1998	58,700	28,413	11,755	1,051	⁴
1999	60,200	28,325	9,519	1,056	⁴
2000	³ 43,700	29,445	9,821	1,102	⁴
2001	44,900	27,115	10,125	921	⁴
2002	51,300	29,624	9,644	1,214	⁴

See footnotes at end of table.

Continued

SUMMARY: Value of crop sales, by counties, 1998-2002 -- Continued

Year	Macadamia nuts (in-shell)	Taro	Seed crops	Flowers and nursery products ¹	Total crops ²
<i>1,000 dollars</i>					
State					
1998	37,375	3,180	25,300	73,207	³ 420,634
1999	37,855	3,604	30,500	75,725	443,111
2000	29,500	3,710	³ 37,500	82,684	³ 431,482
2001	33,040	3,392	45,000	88,597	437,438
2002	29,640	3,294	48,700	92,069	449,482
Counties:					
Hawaii					
1998	⁴	627	⁴	39,153	121,676
1999	⁴	632	⁴	42,462	121,939
2000	⁴	506	⁴	47,499	128,161
2001	⁴	443	⁴	50,637	134,380
2002	⁴	415	⁴	47,491	125,388
Honolulu					
1998	⁴	⁴	⁴	23,743	124,630
1999	⁴	⁴	⁴	21,865	142,407
2000	⁴	⁴	⁴	24,001	145,784
2001	⁴	⁴	⁴	26,198	146,504
2002	⁴	⁴	⁴	31,524	154,065
Kauai					
1998	⁴	1,976	⁴	1,360	³ 49,512
1999	⁴	2,236	⁴	1,547	53,390
2000	⁴	2,520	⁴	1,266	³ 42,886
2001	⁴	2,258	⁴	1,864	38,292
2002	⁴	2,189	⁴	2,303	41,368
Maui					
1998	⁴	⁴	⁴	8,951	124,816
1999	⁴	⁴	⁴	9,851	125,375
2000	⁴	⁴	⁴	9,918	³ 114,651
2001	⁴	⁴	⁴	9,898	118,262
2002	⁴	⁴	⁴	10,751	128,661

* = Less than \$50,000.

¹ Flowers, foliage, and nursery products.

² Total crop values shown for individual counties are actual. Sum of individual commodities may not add to total. Forage crops¹ and Forest product's value combined and included in total crop value.

³ Revised.

⁴ Data not shown separately to avoid disclosure of individual operations but combined and included in the State total.

SUMMARIES

SUMMARY: Value of livestock sales, total value of crop, livestock sales, aquaculture, and government payments, by counties, 1998-2002

Year	Cattle ¹	Hogs ¹	Milk	Eggs	Total livestock ²	Aquaculture	Total crops, livestock and aquaculture ³	Government payments ⁴
<i>1,000 dollars</i>								
State								
1998	16,861	5,235	33,293	11,220	72,708	16,620	⁵ 509,962	23
1999	16,806	5,072	31,270	10,803	69,881	18,102	531,094	820
2000	19,204	4,425	28,102	10,598	68,248	22,170	⁵ 521,900	11,927
2001	18,007	4,514	26,546	9,640	64,743	22,200	524,381	3,860
2002	18,719	4,788	22,467	8,724	61,191	25,180	535,853	1,911
Counties:								
Hawaii								
1998	11,312	420	⁶	⁶	20,846	13,383	155,905	NA
1999	12,363	569	⁶	⁶	22,531	13,377	157,847	NA
2000	14,138	475	⁶	⁶	26,079	16,009	170,249	NA
2001	13,438	465	⁶	⁶	25,878	16,198	176,456	NA
2002	14,152	560	⁶	⁶	27,648	17,329	170,365	1,116
Honolulu								
1998	514	3,451	21,838	8,193	36,189	2,100	162,919	NA
1999	551	3,143	23,300	7,821	36,917	2,333	181,657	NA
2000	556	2,637	19,387	7,471	31,920	2,985	180,689	NA
2001	604	2,848	18,920	6,666	30,958	2,815	180,277	NA
2002	553	2,960	14,401	6,184	25,901	4,179	184,145	167
Kauai								
1998	1,394	539	⁶	⁶	5,116	⁶	⁵ 54,879	NA
1999	1,027	466	⁶	⁶	4,543	⁶	59,731	NA
2000	1,280	378	⁶	⁶	3,853	⁶	⁵ 48,921	NA
2001	1,527	372	⁶	⁶	2,498	⁶	43,384	NA
2002	1,437	430	⁶	⁶	2,482	⁶	46,639	228
Maui								
1998	3,641	825	⁶	⁶	10,557	⁶	136,259	NA
1999	2,865	894	⁶	⁶	5,890	⁶	131,859	NA
2000	3,230	935	⁶	⁶	6,396	⁶	⁵ 122,041	NA
2001	2,438	829	⁶	⁶	5,409	⁶	124,264	NA
2002	2,577	838	⁶	⁶	5,160	⁶	134,704	400

NA = Not available.

¹ Excludes interfarm sales; includes out-of-State sales of slaughter cattle and feeder calves.

² Sum of individual commodities may not add to total. Includes sheep, wool, turkeys, horses, honey, beeswax, broilers, and chickens.

³ Total includes aquaculture beginning 1994.

⁴ Includes all government payments, such as Agricultural Conservation Program, Cattle Indemnity Payment Program, Dairy Indemnity Payment Program, Emergency Conservation Program, Forestry Incentives Program, Emergency Feed Program, wool payments, and sugar support.

⁵ Revised.

⁶ Data not shown separately to avoid disclosure of individual operations but combined and included in the State total.

FOOD EXPENDITURES

U.S. Food Expenditures by families and individuals, selected years, 1929-2001

Year	Disposable personal income	Expenditures for food					
		At home ¹		Away from home ²		Total ³	
	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Percent</i>	<i>Billion dollars</i>	<i>Percent</i>	<i>Billion dollars</i>	<i>Percent</i>
1929	83.2	16.9	20.3	2.6	3.1	19.5	23.5
1934	52.7	11.1	21.1	1.7	3.2	12.8	24.3
1939	71.4	13.0	18.1	2.3	3.2	15.2	21.3
1944	148.3	22.1	14.9	5.1	3.4	27.2	18.4
1949	191.1	34.3	17.9	7.8	4.1	42.0	22.0
1954	264.5	42.4	16.0	9.3	3.5	51.7	19.5
1959	351.2	50.1	14.3	12.1	3.5	62.3	17.7
1964	463.0	55.5	12.0	15.7	3.4	71.2	15.4
1969	675.0	69.0	10.2	23.4	3.5	92.3	13.7
1974	1,072.3	107.3	10.0	38.5	3.6	145.8	13.6
1979	1,808.2	164.0	9.1	76.9	4.3	240.9	13.3
1984	2,887.6	224.0	7.8	121.9	4.2	345.8	12.0
1989	4,016.3	285.1	7.1	175.2	4.4	460.3	11.5
1994	5,165.4	339.1	6.6	217.2	4.2	556.3	10.8
1999	6,618.0	412.3	6.2	270.6	4.1	682.9	10.3
2001	7,417.3	440.4	5.9	298.4	4.0	738.9	10.0

¹ Food purchases from grocery stores and other retail outlets, including purchases with food stamps and WIC vouchers and food produced and consumed on farms (valued at farm prices) because the value of these foods is included in personal income. Excludes government-donated foods.

² Purchases of meals and snacks by families and individuals, and food furnished to employees since it is included in personal income. Excludes food paid for by government and business, such as donated foods to schools, meals in prisons and other institutions, and expense-account meals.

³ Total may not add due to rounding.

Source: Economic Research Service, U.S. Department of Agriculture.

RECORD HIGHS AND LOWS

Record highs and lows for selected items, State of Hawaii

Item	Unit	Record high		Record low		Year estimate started
		Quantity	Year ¹	Quantity	Year ¹	
Anthuriums						
Total sold	1,000 doz.	2,532	1980	216	1959	1959
Price ²	\$/doz.	9.09	1997	.73	1966	1959
Avocados						
Harvested	Acres	330	1986	90	1975	1946
Production	1,000 lbs.	1,600	1982	400	1996	1946
Price ²	¢/lb.	60.0	1999	6.1	1959	1946
Bananas						
Harvested	Acres	1,550	2000	550	1977	1946
Production	1,000 lbs.	29,000	2000	4,470	1983	1946
Price ²	¢/lb.	43.0	2002	4.6	1946	1946
Cabbage, Head						
Harvested	Acres	740	1947	370	1971	1946
Production	1,000 lbs.	15,750	1989	6,800	1953	1946
Price ²	¢/lb.	22.0	2001	3.0	1959	1946
Coffee						
Harvested	Acres	6,800	2000	1,650	1985	1946
Production	1,000 lbs.	18,496	1957	990	1982	1946
Price ²	¢/lb.	390.0	1989	17.8	1946	1946
Foliage, potted (indoor)						
Sales (value)	\$1,000	19,236	2001	171	1972	1972
Ginger Root						
Harvested	Acres	360	2001	11	1974	1946
Production	1,000 lbs.	18,000	2001	352	1974	1946
Price ²	¢/lb.	92.3	1982	16.2	1949	1946
Guavas						
Harvested	Acres	1,040	1990	60	1957	1955
Production	1,000 lbs.	24,300	1990	1,737	1957	1955
Price ²	¢/lb.	15.0	2002	3.1	1956	1955
Macadamia nuts						
Harvested	Acres	19,300	1995	830	1953	1946
Production	1,000 lbs.	58,000	1997	630	1946	1946
Price ²	¢/lb.	90.0	1988	15.2	1946	1946
Papayas						
Harvested	Acres	2,650	1985	320	1952	1946
Production	1,000 lbs.	80,500	1984	5,525	1947	1946
Price ²	¢/lb.	48.9	1997	3.2	1946	1946

See footnotes at end of table

Continued

RECORD HIGHS AND LOWS

Record highs and lows for selected items, State of Hawaii -- Continued

Item	Unit	Record high		Record low		Year estimate started
		Quantity	Year ¹	Quantity	Year ¹	
Pineapples						
Total in crop	Acres	76,700	1957	19,100	2002	1946
Production	1,000 tons	1,048	1955	320	2002	1950
Value (farm)	\$1,000	107,775	1991	29,700	1951	1950
Sugar³						
Harvested	Acres	145,000	1933	19,300	2001	1909
Yield/acre (sugar)	Tons/acre	12.76	2001	4.81	1910	1909
Production (raw sugar)	1,000 tons	1,234	1966	246	2001	1909
Price ² (sugar)	\$/Ton	633.00	1974	52.00	1940	1909
Taro						
Harvested	Acres	1,020	1948	320	1980	1946
Production	1,000 lbs.	14,195	1948	5,440	1983	1946
Price ²	¢/lb.	54.0	2002	3.1	1949	1946
Tomatoes						
Harvested	Acres	600	1950	150	1972	1946
Production	1,000 lbs.	17,500	2002	3,300	1972	1946
Price ²	¢/lb.	65.0	1990	9.1	1947	1946
Watermelons						
Harvested	Acres	870	1950	125	1979	1946
Production	1,000 lbs.	20,400	1995	1,130	1979	1946
Price ²	¢/lb.	26.0	2002	6.4	1955	1946
Cattle and calves						
Jan. 1 inventory	Head	249,000	1971	130,000	1946	1946
Production (lv. wgt.)	1,000 lbs.	64,750	1989	25,470	1953	1946
Price ²	\$/cwt.	57.50	1993	12.30	1946	1946
Hogs and pigs						
Dec. 1 inventory	Head	72,000	1965	24,000	2002	1960
Production (lv. wgt.)	1,000 lbs.	13,159	1978	5,425	2001	1960
Price ²	\$/cwt.	84.00	2002	29.50	1964	1960
Milk						
Marketings	Million lbs.	157.1	1988	65.2	1946	1946
Production per cow	lbs./cow	14,667	2002	8,750	1960	1960
Price ²	\$/cwt.	26.50	1999	6.75	1946	1946
Eggs						
Layers Dec. 1	Head	1,037,000	1974	302,000	1950	1950
Production	Million eggs	229.3	1979	117.5	2002	1958
Price ²	¢/doz.	90.6	1997	39.2	1968	1958

¹ In case of a tie, the most recent year was used.

² Prices are annual or crop-year average.

³ Primary data source, Hawaiian Sugar Planters' Association.

AGRICULTURE'S CONTRIBUTIONS TO HAWAII'S ECONOMY, 2000

If you inquire about the size of a condominium unit, one person might respond by stating the number of bedrooms, bathrooms, and associated parking stalls. Alternatively, another might state the square-foot area of its interior area and lanai. Both descriptions convey useful but different information.

Likewise, when we describe the contribution of agriculture to Hawaii's economy, we can portray it in several ways. The actual estimates may vary depending on what is defined as "agriculture" and on the methodology applied to develop the estimates. Here, we define agriculture as including farm production, forestry, fisheries, agricultural services, and food processing, as well as the related distribution margins (transportation, wholesale, and retail) used in delivering agricultural products and services. Then, we summarize and compare three measures of contribution--sales, value added (GSP), and employment--for three benchmark years: 1992, 1997, and 2000. (For more detail on this subject, see CTAHR publication EI-3, *Agriculture's Contribution to Hawaii's Economy--An Update*, available at <www.ctahr.hawaii.edu>.

Agriculture sales

Sales value is the most common measure of economic activities. It includes the farmgate value routinely reported by the Hawaii Department of Agriculture. Total agriculture sales (farm production, agricultural service, forestry and fisheries, and food processing) decreased from \$2.14 billion in 1992 to \$1.87 billion in 1997 but rebounded to \$1.94 value declined sharply by 10% annually during the 1992-2000 period, pineapple sales value remained stable at \$102 million after a slight decline in 1997. The continual decrease in sugarcane sales value is largely offset by the tremendous growth in sales value of diversified agriculture (including seed crops, coffee, macadamia nuts, fruits, vegetables, flowers, and nursery products), which increased at an annual rate of 3.8% between 1992 and 2000. Reflecting this trend, the sales value of diversified agriculture jumped from just over 50% of total farm production in 1992 to almost 70% in 2000. Diversified agriculture posted record high sales of \$357 million in 2000.

Value added--the contribution to GSP

An industry's gross state product (GSP) is the value added in production contributed by labor and property. It is equivalent to the value of production minus the value of intermediate goods that producers buy from other producers. Hawaii's economy as measured by total GSP decreased slightly at an annual rate of 0.8% during the 1992-1997 period, but it rebounded at a yearly rate of 1.7% from 1997 to 2000. Agriculture's GSP likewise decreased during the 1992-1997 period, at a higher annual rate of 2.3%, but it came back strongly from 1997 to 2000 with a robust annual rate of increase of 2.5%. During this latter period, agriculture's contribution to Hawaii's economy had a higher rate of growth than the other sectors combined. Agriculture,

including its distribution margins, contributes 3.1% of Hawaii's total GSP--a fairly constant share since 1992.

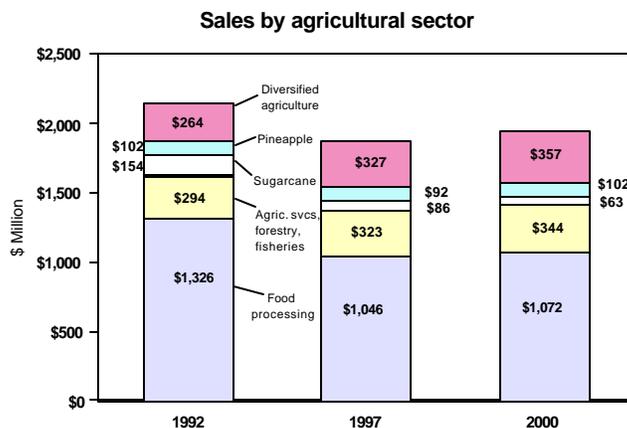
Agriculture's contribution to employment

Employment (the number of full and part-time jobs) provides another good indicator in measuring the contribution of an industry to the economy. In 1992, agriculture contributed 4.2% of total employment in the state, but it declined slightly to 3.7% in 1997, before reversing the trend and rising to 3.8% in 2000. When distribution margins are included, agriculture in 2000 contributed over 38,000 jobs, or 5.0% of the total statewide employment.

Alternate methodology

The U.S. Department of Agriculture's Economic Research Service (USDA-ERS) also estimates the impact of agriculture in Hawaii. ERS uses the national input-output table to assess the total economic activity (in terms of value added, employment, and output) in providing food, clothing, tobacco, flowers, and other agricultural products to the final consumers. By this measure, in 1997 the estimated total contribution of Hawaii's agriculture in terms of value added was \$4.72 billion and employment was 114,431 jobs; these correspond to 12.3% of Hawaii's total value added and 15.4% of state employment¹. These estimates are obviously higher than those presented above, primarily due to the much-expanded definition of agriculture used by ERS.

¹ Dr. William Edmondson, ERS-USDA, provided the 1997 estimates, the most recent available.



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FARM FINANCIAL INDICATORS

Farm Business Balance Sheet, State of Hawaii, December 31, 1997-2001

	1997	1998	1999	2000	2001
<i>Thousand dollars</i>					
Farm assets	3,552,630	3,766,429	3,643,782	3,804,547	4,056,097
Farm debt ¹	250,756	264,786	257,846	264,360	274,957
Real estate	145,236	156,906	149,929	147,627	155,726
Nonreal estate	105,520	107,880	107,917	116,733	119,231
Equity	3,301,874	3,501,643	3,385,936	3,540,187	3,781,140
Ratio:					
Debt/equity	7.6	7.6	7.6	7.5	7.3
Debt/assets	7.1	7.0	7.1	7.0	6.8

¹Excludes debt for nonfarm purposes.

Source: Economic Research Service, USDA.

Farm Financial Indicators - value added to the Hawaii economy by the agricultural sector via the production of goods and services, 1998-2002

	1998	1999	2000	2001	2002
<i>Thousand dollars</i>					
Value of crop production	420,781	443,125	426,249	424,809	424,668
Value of livestock production	87,687	84,254	85,149	89,993	84,409
Services and forestry	32,019	32,718	33,845	34,429	34,552
Value of agricultural sector production ¹	540,487	560,097	545,243	549,231	543,629
less: Purchased inputs	188,486	190,761	192,423	196,939	190,242
Farm origin	39,738	37,113	35,466	38,342	38,597
Manufactured inputs	63,227	63,883	67,819	67,393	62,011
Other purchased inputs	85,521	89,765	89,138	91,204	89,634
plus: Net government transactions	(7,064)	(6,328)	(4,521)	(3,539)	(5,463)
Gross value added	344,936	363,008	357,341	348,753	347,924
less: Capital consumption	36,939	37,012	37,921	37,804	39,140
Net value added ¹	307,997	325,996	319,420	310,949	308,784
less: Payments to stakeholders	200,956	219,231	217,449	207,308	211,097
Employee compensation (total hired labor)	165,848	186,121	182,430	177,028	183,602
Net rent received by nonoperator landlords	14,693	12,952	13,947	11,039	10,125
Real estate and nonreal estate interest	20,415	20,158	21,072	19,241	17,370
Net farm income ¹	107,041	106,765	101,971	103,641	97,687

¹ Value of agricultural sector production is the gross value of the commodities and services produced within a year. Net value-added is the sector's contribution to the Hawaii economy and is the sum of the income from production earned by all factors-of-production. Net farm income is the farm operators' share of income from the sector's production activities. The concept presented is consistent with that employed by the Organization for Economic Cooperation and Development.

Source: Economic Research Service/USDA. E-Mail: rogers@ers.usda.gov. Revised: September 9, 2003.