

Section 19

AGRICULTURE

This section presents statistics on agricultural land, farms, crops, livestock, dairy products, poultry, and aquaculture. Related information appears in Sections 6 (on land use), 12 and 15 (agricultural employment and earnings), and 22 (food processing).

There were 4,650 farms in Hawaii in 1988, with a total area of 1.72 million acres. The value of crop sales in 1988 was \$485 million, or 58 percent higher than the total for 1978. Livestock sales amounted to \$89 million, or 22 percent more than the 1978 level. Combined crop and livestock sales in 1988 ranged from \$65 million in Kauai County to \$195 million on the Big Island. Major crops were sugar (\$210 million in sales, up 15 percent over the decade), pineapple (\$107 million, or 70 percent over the 1978 total), flowers and nursery products (\$60 million, or 242 percent more than in 1978), and macadamia nuts (\$41 million, up 263 percent). Diversified crops, defined as all crops other than sugar and pineapple, rose from \$62 million in 1978 to \$168 million in 1988, or approximately 170 percent. About 675 farms sold \$60 million of flowers and nursery products in 1988, chiefly anthuriums, potted foliage, and orchids. Important products of livestock farms as of 1988 included cattle and calves (\$28 million in sales), milk (\$32 million), and eggs (\$14 million). In 1988, Hawaii produced 33 percent of the fresh market vegetables consumed locally, 35 percent of the fresh market fruits, 28 percent of the beef and veal, 20 percent of the pork, 18 percent of the chickens, and 90 percent of the eggs.

Aquaculture has been growing in importance in recent years, with an aggregate value rising from \$525,000 in 1978 to \$5.5 million in 1988. Shellfish production amounted to 703,000 pounds in 1988, with a value of \$3.5 million.

Statistics on Hawaiian agriculture exclude pakalolo (marijuana) and other illicit plants. Authorities confiscated \$1.9 billion worth of marijuana in 1988, but the proportion escaping detection is unknown.

Important sources for data on agriculture include the United States Census of Agriculture, most recently conducted in 1987, the annual report on Statistics of Hawaiian Agriculture issued by the Hawaii Agricultural Statistics Service, and data compiled by the Hawaiian Sugar Planters' Association and the Aquaculture Development Program of the Department of Land and Natural Resources. Agricultural data for earlier years are summarized in Historical Statistics of Hawaii, Section 13. National statistics appear in Section 23 of the Statistical Abstract of the United States: 1989.

Table 549.-- FARMS, LAND IN FARMS, AND SELECTED ITEMS:
1987 AND 1982

Item	All farms		Farms with sales of \$1,000 or more	
	1987	1982	1987	1982
Farms number ..	4,870	4,595	2,049	1,775
Land in farms acres ..	1,721,521	1,957,501	1,634,955	1,858,568
Average size of farm acres ..	353	426	798	1,047
Value of land and buildings:				
Average per farm ... dollars ..	603,435	778,471	1,096,618	1,693,553
Average per acre ... dollars ..	1,707	1,826	1,374	1,617
Estimated market value of all machinery and equipment:				
Average per farm ... dollars ..	41,208	41,735	85,275	94,031
Farms by size:				
1 to 9 acres	2,855	2,743	976	820
10 to 49 acres	1,401	1,261	734	629
50 to 179 acres	341	320	151	145
180 to 499 acres	128	126	62	64
500 to 999 acres	31	33	21	21
1,000 acres or more	114	112	105	96
Total cropland farms ..	4,170	3,836	1,814	1,536
..... acres ..	327,396	346,113	299,180	324,830
Harvested cropland farms ..	3,837	3,538	1,758	1,485
..... acres ..	152,719	155,960	145,422	149,843
Irrigated land farms ..	1,827	1,544	975	777
..... acres ..	148,884	145,982	146,907	143,986
Market value of agricultural products sold \$1,000 ..	609,740	558,608	600,637	549,601
Average per farm ... dollars ..	125,203	121,569	293,137	309,635
Crops, including nursery and greenhouse crops \$1,000 ..	498,317	456,069	491,320	449,457
Livestock, poultry, and their products \$1,000 ..	111,424	102,539	109,317	100,144

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Table 549.-- FARMS, LAND IN FARMS, AND SELECTED ITEMS:
1987 AND 1982 -- Con.

Item	All farms		Farms with sales of \$1,000 or more	
	1987	1982	1987	1982
Farms by value of sales:				
Less than \$2,500	1,402	1,454	-	-
\$2,500 to \$4,999	674	706	-	-
\$5,000 to \$9,999	745	653	-	-
\$10,000 to \$24,999	911	788	911	788
\$25,000 to \$49,999	476	397	476	397
\$50,000 to \$99,999	287	237	287	237
\$100,000 or more	375	353	375	353
Operators by principal occupation:				
Farming	2,816	2,565	1,557	1,352
Other	2,054	2,030	492	423
Operators by days worked off farm:				
Any	2,728	2,534	909	722
200 days or more	1,476	1,371	470	375
Average age of operator .. years ..	53.0	52.7	51.1	51.5
Total farm production				
expenses \$1,000 ..	495,759	(NA)	482,975	(NA)
Average per farm ... dollars ..	101,840	(NA)	235,828	(NA)
Selected farm production expenses:				
Livestock and poultry				
purchased \$1,000 ..	15,230	17,581	14,646	17,032
Feed for livestock and				
poultry \$1,000 ..	42,629	41,548	42,095	40,889
Interest expense \$1,000 ..	22,930	17,771	21,407	16,665
Petroleum products \$1,000 ..	17,197	19,864	16,065	18,759
Livestock and poultry:				
Cattle and calves				
inventory farms ..	1,003	1,040	259	268
number ..	211,045	241,969	193,062	219,651
Beef cows				
..... farms ..	724	784	198	208
number ..	83,427	90,523	76,126	81,629
Milk cows				
..... farms ..	73	88	27	38
number ..	11,836	12,767	11,736	12,662
Cattle and calves sold				
..... farms ..	807	817	225	241
number ..	101,315	91,675	96,239	86,603

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Table 549.-- FARMS, LAND IN FARMS, AND SELECTED ITEMS:
1987 AND 1982 -- Con.

Item	All farms		Farms with sales of \$1,000 or more	
	1987	1982	1987	1982
Livestock and poultry, con.:				
Hogs and pigs inventory farms ..	372	371	136	132
number ..	47,564	49,029	42,784	42,683
Hogs and pigs sold farms ..	307	319	127	126
number ..	69,019	66,875	64,618	61,919
Sheep and lambs				
inventory farms ..	42	34	11	8
number ..	(D)	(D)	(D)	(D)
Chicken 3 months old or				
older inventory farms ..	181	201	56	58
number ..	(D)	929,210	(D)	921,810
Broilers and other meat-				
type chickens sold ... farms ..	12	23	8	15
number ..	2,069,316	3,173,500	2,069,219	3,172,382
Selected crops harvested:				
Sugarcane for sugar farms ..	79	188	62	157
acres ..	79,234	89,696	79,140	(D)
tons ..	7,934,181	8,950,242	7,929,989	8,941,044
Pineapples harvested ... farms ..	18	15	12	14
acres ..	22,262	23,141	22,254	(D)
tons ..	683,182	626,860	683,086	(D)
Vegetables harvested				
for sale farms ..	710	746	428	366
acres ..	5,587	4,673	5,165	4,133
Land in orchards farms ..	2,128	1,825	796	612
acres ..	33,564	23,178	27,525	18,656
Macadamia nuts farms ..	1,036	879	377	307
acres ..	23,233	15,472	20,284	13,960
pounds ..	44,464,884	35,594,548	42,380,242	34,258,992
Nursery and greenhouse				
crops farms ..	1,139	1,050	573	467
sales, \$1,000 ..	56,527	35,973	(D)	34,062

(D) Withheld to avoid disclosing data for individual farms.

Source: U.S. Bureau of the Census, 1987 Census of Agriculture, Advance State Report, Hawaii, AC87-A-15-000(A) (May 1989).

Table 550.-- FARMS AND LAND IN FARMS, FOR COUNTIES: 1987

Item	Hawaii	Honolulu	Kauai	Maui
Farms number ..	2,810	938	400	722
Land in farms acres ..	1,007,287	130,771	224,153	359,310
Average size of farm acres ..	358	139	560	498
Value of land and buildings:				
Average per farm .. dollars ..	573,527	440,397	709,213	873,008
Average per acre .. dollars ..	1,600	3,159	1,266	1,754
Estimated market value of all machinery and equipment:				
Average per farm .. dollars ..	27,187	39,523	70,317	81,608
Farms by size:				
1 to 9 acres ..	1,602	707	181	365
10 to 49 acres ..	883	156	139	223
50 to 179 acres ..	180	31	51	79
180 to 499 acres ..	71	21	11	25
500 to 999 acres ..	14	7	5	5
1,000 acres or more ..	60	16	13	25
Total cropland farms ..				
acres ..	2,561	742	294	573
Harvested cropland farms ..				
acres ..	137,924	49,887	50,146	89,439
Irrigated land farms ..				
acres ..	2,390	716	235	496
acres ..	63,098	24,779	21,890	42,952
Market value of agricultural products sold \$1,000 ..				
Average per farm .. dollars ..	219,756	168,824	67,847	153,313
Average per farm .. dollars ..	78,205	179,983	169,619	212,345
Crops, including nursery and greenhouse crops ... \$1,000 ..				
Livestock, poultry, and their products \$1,000 ..	195,140	100,356	62,099	140,722
products \$1,000 ..	24,616	68,468	5,748	12,591

Source: U.S. Bureau of the Census, 1987 Census of Agriculture, Geographic Area Series, Hawaii, State and County Data, AC87-A-11 (August 1989), pp. 130-132.

Table 551.-- EMPLOYMENT IN AGRICULTURE: 1900 TO 1988

Year	Number	Percent of total	Year	Number	Percent of total
1900	55,931	62.0	1950 <u>1/</u>	31,806	19.0
1910	54,742	54.1	1960 <u>1/</u>	15,981	7.6
1920	54,803	49.0	1970 <u>1/</u>	13,161	4.6
1930	61,811	40.1	1980 <u>1/</u>	14,560	3.5
1940 <u>1/</u> ...	54,629	35.5	1988 <u>1/</u>	13,600	2.6

1/ Agriculture, forestry, and fisheries.

Source: Robert C. Schmitt, Historical Statistics of Hawaii (1977), pp. 122-124; present volume, tables 342 and 346.

Table 552.-- GENERAL EXCISE TAX BASE FOR PRODUCING:
1978 TO 1988

[In thousands of dollars. Data are on a cash basis accounting. "Producing" refers to the raising and production of agricultural products in their natural state, the production of natural resource products, fishing, and aquaculture; see HRS, 1985 Replacement, Section 237-5]

Year <u>1/</u>	Amount	Year <u>1/</u>	Amount	Year <u>1/</u>	Amount
1978 <u>2/</u> ...	151,955	1982	173,891	1986	250,954
1979	156,873	1983	220,298	1987	274,202
1980	143,694	1984	242,641	1988 <u>3/</u> ..	298,261
1981	176,582	1985	262,791		

1/ Calendar year in which reported, including "prior years" reports. Income received in December is reported the following January, hence these annual totals generally refer to an "income year" ended November 30.

2/ Partly estimated.

3/ Data exclude tax base for unallocated collections, distributed for earlier years.

Source: Hawaii State Department of Taxation, "General Excise and Use Tax Base" (annual tabular release).

Table 553.-- NUMBER OF FARMS, FARM ACREAGE, AND FARM EMPLOYMENT:
1970 TO 1988

Year	Number of farms <u>1/</u>	Farm acreage <u>2/</u> (1,000)	Farm employment <u>3/</u>		
			Self-employed farm operators	Unpaid family members	Hired workers
1970	4,500	2,300	3,200	1,450	12,450
1971	4,400	2,300	3,050	1,500	11,810
1972	4,300	2,300	3,050	1,550	11,220
1973	4,300	2,300	3,050	1,550	10,770
1974	3,800	2,200	3,040	1,660	10,180
1975	3,900	2,150	3,060	1,720	11,040
1976	4,000	2,100	2,890	1,560	11,240
1977	4,100	2,050	2,840	1,550	11,300
1978	4,300	1,980	2,890	1,810	11,600
1979	4,300	1,980	3,020	1,520	10,800
1980	4,300	1,970	3,400	1,100	10,550
1981	4,400	1,965	3,100	900	10,500
1982	4,500	1,960	2,600	1,300	13,000
1983	4,500	1,900	2,500	1,500	13,000
1984	4,600	1,850	2,200	1,300	11,800
1985	4,600	1,800	2,200	1,200	10,600
1986	4,600	1,750	2,050	1,200	9,700
1987	4,650	1,720	2,600	1,100	10,700
1988	4,650	1,720	2,600	1,100	10,300

1/ Based on farm definition of \$600 or more of agricultural sales prior to 1974 and \$1,000 or more thereafter.

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

3/ Annual averages through 1980, and varying dates thereafter.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture (annual) and records.

Table 554.-- VALUE OF CROP AND LIVESTOCK SALES: 1970 TO 1988

[\$1,000]

Year	All crops and livestock	Crops				Live-stock
		All crops	Sugar (unprocessed cane)	Pine-apples (fresh equiv.)	Other crops	
1970	213,667	172,019	110,600	39,500	21,919	41,648
1971	221,692	178,639	115,800	40,300	22,539	43,053
1972 1/ ...	232,760	186,518	117,300	43,900	25,318	46,242
1973 1/ ...	266,161	210,892	141,900	39,600	29,392	55,269
1974	575,432	517,523	442,300	40,259	34,964	57,909
1975	377,575	319,304	237,000	41,616	40,688	58,271
1976	327,820	265,498	164,700	52,983	47,815	62,322
1977	325,182	260,164	144,200	62,249	53,715	65,018
1978	380,655	308,098	182,700	63,090	62,308	72,557
1979	441,253	362,789	217,600	69,409	75,780	78,464
1980	634,101	552,877	385,100	76,596	91,181	81,224
1981	489,502	401,348	207,500	89,745	104,103	88,154
1982	507,268	428,860	230,800	94,364	103,696	78,408
1983	568,413	481,925	266,900	100,376	114,649	86,488
1984	550,517	463,502	256,200	89,928	117,374	87,015
1985	528,649	445,826	222,400	90,530	132,896	82,823
1986	564,717	481,312	233,800	99,720	147,792	83,405
1987 1/ ...	557,298	469,565	218,000	99,286	152,279	87,733
1988	574,089	485,469	209,900	107,402	168,167	88,620

1/ Revised from Data Book 1988, table 581.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture (annual) and records.

Table 555.-- NUMBER OF FARMS, FARM ACREAGE, AND FARM EMPLOYMENT, BY COUNTIES OR ISLANDS: 1978, 1987, AND 1988

County or island	Number of farms <u>1/</u>	Farm acreage <u>2/</u> (1,000)	Farm employment <u>3/</u>		
			Self-employed farm operators	Unpaid family members	Hired workers
State total:					
1978	4,300	1,980	2,890	1,810	11,600
1987 <u>4/</u>	4,650	1,720	2,600	1,100	10,700
1988	4,650	1,720	2,600	1,100	10,300
Hawaii County:					
1978	2,650	1,150	1,710	1,150	3,560
1987 <u>4/</u>	2,700	1,010	1,725	750	3,800
1988	2,700	1,010	1,750	725	3,700
Maui County:					
1978	500	425	360	225	3,390
1987 <u>4/</u>	600	360	260	140	2,800
1988	600	360	250	125	2,650
Oahu:					
1978	1,000	125	600	340	2,960
1987 <u>4/</u>	950	125	460	160	2,800
1988	950	125	475	175	2,700
Kauai County:					
1978	250	280	210	100	1,610
1987 <u>4/</u>	400	225	160	50	1,300
1988	400	225	140	60	1,200

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

2/ Includes land not in crops and pasture, such as farm house lots, roads, woodlots, etc.

3/ Data not comparable among years shown due to changes in survey periods; sum of county estimates may not add due to rounding.

4/ Revised from Data Book 1988, table 580.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture (annual).

Table 556.-- VALUE OF CROP AND LIVESTOCK SALES, BY COUNTIES OR ISLANDS: 1978, 1987, AND 1988

[\$1,000]

County and year	All crops and livestock	Crops				Live-stock
		All crops	Sugar (unprocessed cane)	Pine-apples (fresh equiv.)	Other crops	
State total:						
1978	380,655	308,098	182,700	63,090	62,308	72,557
1987 <u>1/</u> ...	557,298	469,565	218,000	99,286	152,279	87,733
1988	574,089	485,469	209,900	107,402	168,167	88,620
Hawaii County:						
1978	123,292	103,348	68,600	-	34,748	19,946
1987 <u>1/</u>	180,306	153,891	64,400	-	89,491	26,415
1988	194,646	165,619	60,000	-	105,619	29,027
Maui County:						
1978	91,467	82,300	43,600	28,340	10,360	9,167
1987 <u>1/</u>	146,717	136,126	66,900	46,366	22,860	10,591
1988	138,037	128,878	66,200	39,141	23,537	9,159
Oahu:						
1978	118,864	79,732	30,900	34,750	14,082	39,131
1987 <u>1/</u>	166,738	121,084	35,500	52,920	32,664	45,654
1988	176,613	130,928	31,900	68,261	30,767	45,685
Kauai County:						
1978	47,032	42,718	39,600	-	3,118	4,313
1987 <u>1/</u>	63,537	58,464	51,200	(<u>2/</u>)	7,264	5,073
1988	64,793	60,044	51,800	(<u>2/</u>)	8,244	4,749

1/ Revised from Data Book 1988, table 583.

2/ Less than \$50,000.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture (annual) and records.

Table 557.-- ACREAGE IN CROP, NUMBER OF CROP FARMS, VOLUME OF CROP MARKETINGS, AND VALUE OF CROP SALES: 1978, 1987, AND 1988

Subject	1978	1987 ^{1/}	1988
Acreage in crop (1,000 acres):			
Sugarcane	220.7	181.1	176.5
Pineapples (land used for pineapple)	43.0	36.1	34.6
Vegetables and melons (harvested acreage) ..	4.0	5.6	5.2
Fruits, excluding pineapples	5.2	7.0	7.6
Coffee	2.3	2.4	2.6
Macadamia nuts	10.2	21.5	21.9
Miscellaneous crops	6.0	6.0	7.4
Number of crop farms:			
Sugar	480	100	75
Pineapples	16	12	12
Vegetables and melons	542	660	575
Fruits (excluding pineapples)	641	774	775
Coffee	750	630	635
Macadamia nuts	464	650	660
Taro	132	140	155
Flowers and nursery products	600	670	675
Volume of crop marketings:			
Sugar, unprocessed cane (1,000 tons)	9,263	8,014	7,606
Pineapples, fresh equivalent (1,000 tons) ..	675	692	659
Vegetables and melons (1,000 lb.)	72,010	95,330	92,730
Fruits, excluding pineapples (1,000 lb.) ...	79,120	99,330	104,570
Coffee, parchment (1,000 lb.)	1,680	1,800	2,000
Macadamia nuts, in shell (1,000 lb.)	20,980	42,700	45,500
Taro (1,000 lb.)	7,680	6,300	6,800
Value of crop sales (\$1,000):			
Sugar (unprocessed cane)	182,700	218,000	209,900
Pineapples (fresh equivalent)	63,090	99,286	107,402
Vegetables and melons	16,585	30,556	30,917
Fruits (excluding pineapples)	10,488	17,431	20,477
Coffee (parchment)	2,117	4,860	6,600
Macadamia nuts (in shell)	11,287	35,868	40,950
Taro	1,029	1,676	1,904
Field crops (not estimated separately)	3,224	6,947	7,423
Flowers and nursery products	17,458	54,731	59,646

NA Not available.

^{1/} Revised from Data Book 1988, table 584.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture (annual).

Table 558.-- ACREAGE IN CROP, NUMBER OF CROP FARMS, VOLUME OF CROP MARKETINGS, AND VALUE OF CROP SALES, BY GEOGRAPHIC AREAS: 1988

Subject	Hawaii County	Maui County	Oahu	Kauai County
Acres in crop (1,000 acres):				
Sugarcane	66.7	42.2	25.7	41.9
Pineapples (land used for pineapple)	-	21.3	13.3	1/
Vegetables and melons (harvested acreage)	1.8	2.3	1.0	0.1
Fruits, excluding pineapples	5.9	0.1	0.9	0.7
Coffee	2.6	-	-	-
Macadamia nuts	(D)	(D)	(D)	(D)
Miscellaneous crops	3.1	1.9	1.6	0.8
Number of crop farms:				
Sugar	64	3	3	5
Pineapples	-	7	2	3
Vegetables and melons	290	90	160	35
Fruits (excluding pineapples)	526	43	139	67
Coffee	635	-	-	-
Macadamia nuts	640	9	3	8
Taro	92	14	7	42
Flowers and nursery products	325	85	230	35
Volume of crop marketings:				
Sugar, unprocessed cane (1,000 tons)	2,300	2,128	1,169	2,009
Pineapples, fresh equivalent (1,000 tons)	-	388	271	2/
Vegetables and melons (1,000 lb.)	33,420	46,570	11,750	990
Fruits, excluding pineapples (1,000 lb.)	83,960	990	6,850	12,770
Coffee, parchment (1,000 lb.)	2,000	-	-	-
Macadamia nuts, in shell (1,000 lb.)	(D)	(D)	(D)	(D)
Taro (1,000 lb.)	1,530	(D)	(D)	4,410
Value of crop sales (\$1,000):				
Sugar (unprocessed cane)	60,000	66,200	31,900	51,800
Pineapples (fresh equivalent)	-	39,141	68,261	3/
Vegetables and melons	13,035	11,080	6,443	359
Fruits (excluding pineapples)	16,184	220	1,994	2,079
Coffee (parchment)	6,600	-	-	-
Macadamia nuts (in shell)	(D)	(D)	(D)	(D)
Taro	534	(D)	(D)	1,155
Field crops (not estimated separately)	607	3,308	864	2,644
Flowers and nursery products	29,036	7,257	21,404	1,949

D Withheld to avoid disclosure of individual operations.

1/ Less than 500 acres.

2/ Less than 500 tons.

3/ Less than \$50,000.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture 1988.

Table 559.-- VEGETABLES, MELONS, FRUITS, NUTS, COFFEE, AND TARO: 1988

[Data shown for crops with sales in excess of \$500,000]

Crop	Acreage harvested ^{1/}	Yield per acre (1,000 lb.)	Production (1,000 lb.)	Farm price (cents per lb.)	Value of sales (\$1,000)
Vegetables and melons:					
Snap beans	160	5.9	950	78.6	747
Chinese cabbage	450	18.4	8,300	17.3	1,436
Head cabbage	560	27.9	15,620	16.4	2,562
Celery	85	25.9	2,200	22.9	504
Cucumbers	220	18.0	3,950	33.0	1,304
Daikon	230	14.3	3,300	19.4	640
Eggplant	50	23.6	1,180	55.8	658
Ginger root	165	49.1	8,100	62.0	5,022
Lettuce (head, semi-head)	360	12.5	4,500	36.4	1,638
Dry onions	150	9.5	1,420	78.3	1,112
Green peppers	170	8.4	1,430	48.5	694
Tomatoes	250	28.0	7,000	48.5	3,395
Watermelons	790	23.9	18,900	11.7	2,211
Green onions	170	7.3	1,240	86.1	1,068
Watercress	35	34.3	1,200	100.0	1,200
Romaine	150	11.2	1,680	33.1	556
Sweet Potatoes	140	11.0	1,540	34.4	530
Mustard Cabbage	120	10.5	1,260	40.4	509
Fruits:					
Bananas	1,070	12.1	12,900	33.0	4,257
Guavas	865	21.5	18,560	13.4	2,487
Papayas	2,300	30.0	69,000	17.4	12,354
Macadamia nuts (1988-1989)	16,600	2.7	45,500	90.0	40,950
Coffee (1988-1989)	2,150	0.9	1,600	3.3	6,600
Taro	420	16.2	6,800	28.0	1,904

^{1/} Acreage bearing for macadamia nuts; acreage in crop for watercress and taro.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture 1988.

Table 560.-- SUGARCANE ACREAGE, BY TYPE OF IRRIGATION:
1972 TO 1988

Year	Total cane land	Irrigated cane land		Unirrigated cane land
		Drip	Furrow or overhead	
1972	229,611	327	119,704	109,580
1973	226,580	2,544	116,136	107,900
1974	224,227	5,662	112,919	105,646
1975	221,426	12,719	103,998	104,709
1976	221,551	21,250	98,797	101,504
1977	220,729	30,042	91,368	99,319
1978	220,697	39,167	80,207	101,323
1979	218,773	49,202	70,936	98,635
1980	217,718	60,241	58,966	98,511
1981	216,099	69,665	48,493	97,941
1982	204,749	73,551	41,896	89,302
1983	194,258	80,019	33,459	80,780
1984	188,396	86,925	26,325	75,146
1985	187,858	89,129	24,323	74,406
1986	184,179	90,877	19,526	73,776
1987	180,967	88,812	18,602	73,553
1988	177,693	88,387	17,791	71,515

Source: Hawaiian Sugar Planters' Association, records; Alexander & Baldwin, Inc., "Water to the Roots," Ampersand, Spring 1987, pp. 3-6.

Table 561.-- FRESH FRUIT AND VEGETABLE ARRIVALS IN HONOLULU,
BY SOURCE: 1986 TO 1988

[1,000 pounds, net]

Source	1986	1987	1988
Total arrivals	291,212	295,701	305,515
From Hawaii	103,793	102,078	101,541
Oahu <u>1/</u>	44,582	40,160	36,736
Other islands <u>2/</u>	59,211	61,918	64,805
Hawaii <u>2/</u>	27,932	29,510	31,257
Maui <u>2/</u>	15,512	16,229	16,007
Molokai <u>2/</u>	13,295	14,279	16,548
Kauai <u>2/</u>	2,472	1,900	993
From U.S. Mainland <u>2/</u>	179,647	183,952	195,537
From foreign countries <u>2/</u>	7,772	9,671	8,437

1/ Wholesalers' truck receipts.

2/ Ship and plane arrivals.

Source: Hawaii State Department of Agriculture, Market News Service, Honolulu Arrivals, Fresh Fruits and Vegetables, 1988 (June 1989), table 1, as corrected.

Table 562.--FEED INSHIPMENTS FROM ALL SOURCES: 1983 TO 1986

[1,000 tons. This survey was discontinued after 1986]

Commodity	1983	1984	1985	1986
Total feed	193.0	191.6	170.2	141.4
Feed grains	89.8	88.4	78.4	68.4
Mixed feeds	24.5	21.8	18.5	14.5
Alfalfa products	30.2	32.3	24.1	19.5
Protein foods	26.5	29.6	28.6	25.4
Other feed stuff	21.9	19.5	20.6	13.6

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture 1987.

Table 563.-- LIVESTOCK INVENTORY, 1978, 1987, AND 1988, AND BY
GEOGRAPHIC AREAS, 1988

[In thousands]

Year and geographic area	All cattle and calves <u>1/</u>	Milk cows <u>1/</u>	Hogs and pigs <u>2/</u>	Chickens (excluding broilers) <u>2/</u>	Bee colon- ies
1978	234	13	54	1,333	7
1987	199	12	47	1,212	9
1988	208	12	43	1,217	9
GEOGRAPHIC AREAS: 1988					
Hawaii County	128.7	1.7	4.0	204	(NA)
Maui	27.6	1.0	7.1	(3/)	(NA)
Molokai and Lanai	1.5	-	0.6	(3/)	(NA)
Oahu	36.8	9.0	27.3	1,013	(NA)
Kauai County	13.4	0.5	4.0	(3/)	(NA)

NA Not available.

1/ As of January 1.

2/ As of December 1.

3/ Kauai, Maui, and Molokai combined with Hawaii to avoid disclosure of individual operations.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture (annual).

Table 564.-- NUMBER OF LIVESTOCK OPERATIONS, VOLUME OF LIVESTOCK MARKETINGS,
AND VALUE OF LIVESTOCK SALES: 1978, 1987, AND 1988

Subject	1978	1987 <u>1/</u>	1988
Number of livestock operations, Dec. 31:			
Cattle <u>2/</u>	800	800	800
Hogs	650	600	600
Milk	70	90	90
Eggs	60	55	55
Broilers	10	8	8
Honey	25	14	12
Volume of livestock marketings:			
Beef (dressed weight; 1,000 lb.) <u>3/</u>	33,544	34,335	31,403
Pork (dressed weight; 1,000 lb.)	9,869	8,431	8,217
Milk (million lb.)	147.3	153.7	157.1
Eggs (million)	218	223.3	224.4
Broilers and chickens (1,000 lb.) <u>4/</u>	6,786	7,988	7,994
Honey (1,000 lb.)	812	1,710	1,611
Value of livestock sales (\$1,000):			
Cattle <u>5/</u>	24,370	27,401	27,984
Hogs <u>5/</u>	7,961	8,509	8,381
Milk	23,715	31,201	32,190
Eggs	12,699	14,291	13,801
Broilers and chickens	3,335	5,119	5,110
Other <u>6/</u>	477	1,212	1,154

1/ Revised from Data Book 1988, table 591.

2/ Includes beef, dairy, and dairy replacement farms.

3/ Includes slaughter cattle, but excludes calves shipped out-of-State.

4/ Ready-to-cook weight.

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

6/ Includes sheep, wool, turkeys, horses, honey, and beeswax.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture (annual).

Table 565.-- NUMBER OF LIVESTOCK OPERATIONS, VOLUME OF LIVESTOCK MARKETINGS,
AND VALUE OF LIVESTOCK SALES, BY GEOGRAPHIC AREAS: 1988

Subject	Hawaii County	Maui County	Oahu	Kauai County
Number of livestock operations, Dec. 31:				
Cattle <u>1/</u>	370	190	70	170
Hogs	80	100	300	120
Milk	41	16	20	13
Eggs	25	7	19	4
Broilers	-	-	7	1
Honey	4	4	1	3
Volume of livestock marketings:				
Beef <u>2/</u> (dressed weight; 1,000 lb.)	26,188	3,229	759	1,227
Pork (dressed weight; 1,000 lb.)	564	1,921	4,670	1,062
Milk (million lb.)	(D)	(D)	120.7	(D)
Eggs (million)	(D)	(D)	180.9	(D)
Broilers and chickens <u>3/</u> (1,000 lb.)	(D)	(D)	(D)	(D)
Honey (1,000 lb.)	(D)	(D)	(D)	(D)
Value of livestock sales (\$1,000):				
Cattle <u>4/</u>	23,274	3,128	561	1,021
Hogs <u>4/</u>	590	2,074	4,577	1,140
Milk	(D)	(D)	24,912	(D)
Eggs	(D)	(D)	10,865	(D)
Broilers and chickens	(D)	(D)	(D)	(D)
Other <u>5/</u>	649	201	56	248

D Withheld to avoid disclosure of individual operations.

1/ Includes beef, dairy, and dairy replacement farms.

2/ Includes slaughter cattle, but excludes calves shipped out-of-State.

3/ Ready-to-cook weight.

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

5/ Includes sheep, wool, turkeys, horses, honey, and beeswax.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture 1988.

Table 566.-- FLOWERS AND NURSERY PRODUCTS, 1986 TO 1988, AND BY ISLANDS, 1988

Island and year	Number of farms	Growing area					Value of sales (\$1,000)
		Total (acres)	Green-house (1,000 sq. ft.)	Artificial shade structure (1,000 sq. ft.)	Natural shade area (acres)	Open field (acres)	
State total:							
1986 ^{1/}	635	1,667	2,535	27,610	70	905	49,132
1987 ^{1/}	670	1,840	3,314	27,394	55	1,080	54,731
1988	675	1,833	4,690	23,800	70	1,109	59,646
Islands, 1988:							
Hawaii	325	1,094	2,603	18,624	65	541	29,036
Kauai	35	50	47	195	-	45	1,949
Maui/Molokai .	85	287	307	432	4	266	7,257
Oahu	230	402	1,733	4,549	1	257	21,404

^{1/} Revised from Data Book 1988, table 593.

Source: Hawaii Agricultural Statistics Service, Hawaii Flowers & Nursery Products, Annual Summary (August 16, 1989).

Table 567.-- VALUE OF SALES, TOTAL AND OUT-OF-STATE, FOR FLOWERS AND NURSERY PRODUCTS: 1984 TO 1988

[\$1,000]

Subject	1984	1985	1986	1987 ^{1/}	1988
Total sales ^{2/}	38,905	44,162	49,132	54,731	59,646
Anthuriums, cut	7,351	7,645	9,878	8,652	8,022
Out-of-State sales ^{3/} .	21,610	24,284	28,136	31,904	33,042
Anthuriums, cut	7,050	7,581	8,653	9,170	8,816

^{1/} Revised from Data Book 1988, table 594.

^{2/} Wholesale value only.

^{3/} Includes wholesale and retail sales.

Source: Hawaii Agricultural Statistics Service, Hawaii Flowers and Nursery Products, Annual Summary (August 16, 1989).

Table 568.-- FLOWERS AND NURSERY PRODUCTS, BY COMMODITY: 1988

[Shown for commodities with value of sales over \$750,000]

Commodity	Number of farms	Number sold		Value of sales (\$1,000)
		Unit	Number	
Selected cut flowers:				
Anthuriums	156	1,000 dozens	1,822	8,022
Heliconias	83	1,000 dozens	206	1,364
Protea	43	1,000 stems	1,488	1,214
Roses, tea	13	1,000 dozens	609	2,647
Orchids:				
Sprays: Dendrobium	83	1,000 dozens	417	2,639
Potted: Dendrobiums	76	1,000 pots	481	2,019
Lei flowers:				
Carnations	17	Million blooms	23.3	972
Tuberose	6	Million blooms	43.6	1,198
Vanda, Miss Joaquim	24	Million blooms	311.1	888
Ornamentals and trees	62	...	(NA)	2,226
Foliage:				
Potted, primarily for--				
Indoor or patio use	86	...	(NA)	12,424
Landscape use	47	...	(NA)	4,751
Unfinished stock (for further growing on)	55	...	(NA)	1,795
Potted flowering plants:				
Chrysanthemums	12	1,000 pots	233	781
Poinsettias	39		227	813

NA Not available.

Source: Hawaii Agricultural Statistics Service, Hawaii Flowers & Nursery Products, Annual Summary (August 16, 1989).

Table 569.-- MARKET SUPPLY OF SPECIFIED FOODS: 1978, 1987, AND 1988

Commodity and year	Total market supply <u>1/</u>			Per capita market supply <u>2/</u>	Percent from Hawaii
	Total	Inship-ment	Hawaii		
Fresh market fruits:					
1978	75,944	53,805	22,139	74.9	29.2
1987 <u>3/</u>	113,514	75,139	38,375	94.5	33.8
1988	115,316	75,221	40,095	94.6	34.8
Fresh market melons:					
1978	12,376	10,506	1,870	12.2	15.1
1987 <u>3/</u>	27,809	14,009	13,800	23.2	49.6
1988	34,456	15,556	18,900	28.3	54.9
Fresh market vegetables:					
1978	166,369	97,345	69,024	164.0	41.5
1987 <u>3/</u>	219,605	139,485	80,120	182.9	36.5
1988	221,586	149,251	72,335	181.8	32.6
Beef and veal: <u>4/</u>					
1978	94,243	60,699	33,544	92.9	35.6
1987	109,015	74,680	34,335	90.8	31.5
1988	110,589	79,186	31,403	90.7	28.4
Pork: <u>4/</u>					
1978	31,945	22,076	9,869	31.5	30.9
1987	39,678	31,247	8,431	33.0	21.2
1988	40,713	32,496	8,217	33.4	20.2
Chickens:					
1978	30,468	23,682	6,786	30.0	22.3
1987	42,323	34,335	7,988	35.2	18.9
1988	43,739	35,745	7,994	35.9	18.2
Eggs:					
1978	20,072	1,914	18,158	19.8	90.5
1987	22,105	3,497	18,608	18.4	84.2
1988	20,791	2,091	18,700	17.1	89.9

1/ Eggs in 1,000 dozens; other foods in 1,000 pounds.

2/ Eggs in dozens; other foods in pounds. Based on de facto population estimates in table 3.

3/ Revised from Data Book 1988, table 596.

4/ Carcass weight equivalent.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture (annual).

Table 570.-- LAND EVALUATION RATING, FOR SIX MAJOR ISLANDS: 1985

[Thousand acres. The Land Evaluation and Site Assessment Commission land evaluation rating is a composite index, scaled from 0 to 100, based on measurements of soil productivity and the suitability of land for agricultural purposes. Data exclude Kahoolawe, Niihau, Lehua, Kaula, and the Northwestern Hawaiian Islands]

Land evaluation rating	Six-island total	Hawaii	Maui	Lanai	Molokai	Oahu	Kauai
Total area	4,042	2,579	466	90	166	386	355
90 to 100	66	-	17	3	7	39	-
80 to 89	137	17	39	11	16	33	20
70 to 79	189	95	20	2	6	27	40
60 to 69	212	125	36	(Z)	9	22	20
50 to 59	221	113	64	3	10	12	18
40 to 49	309	227	40	6	10	18	7
30 to 39	605	543	29	1	3	11	17
20 to 29	492	282	55	48	50	30	26
10 to 19	1,813	1,176	165	15	55	194	206
Under 10	-	-	-	-	-	-	-
Mean rating ...	32.8	29.8	40.8	36.7	37.6	40.1	32.9

Z Less than 500 acres.

Source: Land Evaluation and Site Assessment Commission, A Report on the State of Hawaii Land Evaluation and Site Assessment System (February 1986), Exhibit A.

Table 571.-- AGRICULTURAL CHEMICALS USED, INCLUDING FERTILIZER AND LIME:
1978 TO 1987

Chemicals used	1978	1982	1987
Any chemicals, fertilizer, or lime used farms	3,568	3,532	4,105
Commercial fertilizer farms	3,172	3,158	3,524
acres on which used	284,452	228,982	225,457
\$1,000	26,530	33,477	30,717
Lime farms	525	525	825
acres on which used	12,488	9,547	21,544
tons	12,011	10,423	23,220
Agricultural chemicals <u>1/</u> farms	3,277	3,084	3,881
\$1,000	13,700	16,417	18,233
Sprays, dusts, granules, fumigants, etc., to control --			
Insects on hay and other crops farms	1,204	1,702	2,008
acres on which used	28,787	45,671	68,150
Nematodes in crops farms	441	654	663
acres on which used	9,806	9,638	15,792
Diseases in crops and orchards farms	912	1,067	1,151
acres on which used	12,310	18,085	(D)
Weeds, grass, or brush in crops and pasture farms	2,325	2,385	2,887
acres on which used	269,801	213,551	235,871
Chemicals used for defoliation or for growth control of crops or thinning of fruit farms	160	165	212
acres on which used	57,280	50,455	57,481

D Withheld to avoid disclosing data for individual farms.

1/ Data after 1978 exclude the cost of lime.

Source: U.S. Bureau of the Census, 1987 Census of Agriculture, Geographic Area Series, Hawaii, State and County Data, AC87-A-11 (August 1989), table 15, p. 19.

Table 572.-- AQUACULTURE INDUSTRY OPERATIONS: 1970 TO 1988

Year	Number of operations, Dec. 31		Acreage, Dec. 31	Production (1,000 lb.)	Value (\$1,000)
	Total	Prawn producers			
1970	2	1	193	20	11
1971	2	1	193	17	17
1972	2	1	193	18	23
1973	3	2	203	34	34
1974	4	3	213	41	136
1975	10	3	234	82	178
1976	14	6	235	94	210
1977	25	13	246	123	281
1978	25	16	320	178	525
1979	23	19	493	246	1,531
1980	37	24	575	320	1,655
1981	41	21	547	338	1,868
1982	44	22	643	551	2,625
1983	42	21	496	345	1,605
1984	47	17	474	441	2,300
1985	48	20	465	583	2,780
1986	44	20	444	1,015	3,549
1987	45	14	437	1,689	6,263
1988	50	13	430	1,181	5,484

Source: Hawaii State Department of Land and Natural Resources, Aquaculture Development Program, records, May 25, 1989.

Table 573.-- AQUACULTURE OPERATIONS, ACREAGE, PRODUCTION, AND VALUE,
BY COUNTIES: 1988

Subject	State total	Hawaii	Maui	Honolulu	Kauai
Number of operations ...	44	13	3	24	4
Prawn producers	12	1	-	9	2
Acreage (Dec. 31)	477	63	7	403	4
Production (1,000 lb.)..	1,169.7	74.6	(NA)	1,095.1	(NA)
Shellfish	702.7	(NA)	(NA)	702.7	(NA)
Finfish	210.9	15.5	(NA)	195.4	(NA)
Algae	256.1	59.1	(NA)	197.0	(NA)
Other <u>1/</u>	(NA)	...	(NA)
Value (\$1,000)	5,559.8	751.1	(NA)	4,808.7	(NA)
Shellfish	3,476.9	(NA)	(NA)	3,476.9	(NA)
Finfish	623.7	65.7	(NA)	556.0	(NA)
Algae	925.4	435.4	(NA)	490.0	(NA)
Other <u>1/</u>	533.8	250.0	(NA)	283.8	(NA)

NA Not available.

1/ Items not sold by weight: postlarvae, brine shrimp, koi, tropical fish, and aquarium plants.

Source: Hawaii State Department of Land and Natural Resources, Aquaculture Development Program, July 27, 1989.