

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 4,600 farms in Hawaii in 1990, with a total area of 1.7 million acres. The value of crop sales in 1990 was \$500 million, or 9.5 percent lower than the total for 1980. Livestock sales amounted to \$88 million, or 8.9 percent more than the 1980 level. Combined crop and livestock sales in 1990 ranged from \$65 million in Kauai County to \$198 million on the Big Island. Major crops were sugar (\$214 million in sales, down 44.5 percent over the decade), pineapple (\$99 million, or 29.6 percent over the 1980 total), flowers and nursery products (\$70 million, or 154.1 percent more than in 1980), and macadamia nuts (\$41 million, up 69.6 percent). Diversified crops, defined as all crops other than sugar and pineapple, rose from \$91 million in 1980 to \$187 million in 1990, or 105.5 percent. About 710 farms sold \$70 million of flowers and nursery products in 1990, chiefly anthuriums, potted foliage, and orchids. Important products of livestock farms as of 1990 included cattle and calves (\$29 million in sales), milk (\$31 million), and eggs (\$16 million). In 1990, Hawaii produced 32 percent of the fresh market vegetables consumed locally, 57 percent of the fresh market fruits, 26 percent of the beef and veal, 16 percent of the pork, 15 percent of the chickens, and 92 percent of the eggs.

Aquaculture has been growing in importance in recent years, with an aggregate value rising from \$11,000 in 1970 to \$9.2 million in 1990. Shellfish production amounted to 599,000 pounds in 1990, with a value of \$3.0 million.

Statistics on Hawaiian agriculture exclude marijuana and other illicit plants. Authorities confiscated or destroyed marijuana with a potential street value of \$7.7 billion in 1990, 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: 1991.

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

Item	All farms		Farms with sales of \$10,000 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

Continued on next page.

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

Item	All farms		Farms with sales of \$10,000 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

Continued on next page.

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

Item	All farms		Farms with sales of \$10,000 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), and Geographic Area Series, Hawaii, State and County Data, AC87-A-11 (August 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 ..	2,561	742	294	573
acres ..	137,924	49,887	50,146	89,439
Harvested cropland farms ..	2,390	716	235	496
acres ..	63,098	24,779	21,890	42,952
Irrigated land farms ..	644	583	190	410
acres ..	12,899	36,301	32,486	67,198
Market value of agricultural products sold \$1,000 ..	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 ..	195,140	100,356	62,099	140,722
Livestock, poultry, and their 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 1990

[Data for 1940 and later years include forestry and fisheries]

Year	Number	Percent of total	Year	Number	Percent of total
1900	55,931	62.0	1950	31,806	19.0
1910	54,742	54.1	1960	15,981	7.6
1920	54,803	49.0	1970	13,161	4.6
1930	61,811	40.1	1980	14,560	3.5
1940	54,629	35.5	1990	13,150	2.5

Source: Robert C. Schmitt, Historical Statistics of Hawaii (1977), pp. 122-124; present volume, tables 335, 339, and 344.

Table 552.-- GENERAL EXCISE TAX BASE FOR PRODUCING:
1980 TO 1990

[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
1980	143,694	1984	242,641	1988	298,261
1981	176,582	1985	262,791	1989	326,400
1982	173,891	1986	250,954	1990	317,337
1983	220,298	1987	274,202		

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.

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 1990

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
1989	4,650	1,720	2,400	1,100	9,800
1990	4,600	1,710	2,500	1,000	9,600

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 1990

[\$1,000]

Year	All crops and livestock	Crops				Live-stock
		All crops	Sugar (unprocessed cane)	Pine-apples (fresh equiv.)	Other crops	
1970	213,950	172,302	110,600	39,500	22,202	41,648
1971	221,829	178,776	115,800	40,300	22,676	43,053
1972	232,760	186,518	117,300	43,900	25,318	46,242
1973	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 <u>1/</u>	568,414	481,926	266,900	100,376	114,650	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	557,298	469,565	218,000	99,286	152,279	87,733
1988	573,962	485,293	209,900	107,402	167,991	88,669
1989 <u>1/</u>	585,048	493,261	210,300	98,310	184,651	91,787
1990	588,844	500,400	213,800	99,255	187,345	88,444

1/ Revised from Data Book 1990, table 571.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: 1980, 1989, AND 1990

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:					
1980	4,300	1,970	3,400	1,100	10,550
1989	4,650	1,720	2,400	1,100	9,800
1990	4,600	1,710	2,500	1,000	9,600
Hawaii County:					
1980	2,500	1,150	2,090	740	3,240
1989	2,700	1,010	1,575	725	3,610
1990	2,650	1,005	1,560	610	3,475
Maui County:					
1980	500	420	400	110	3,140
1989	600	360	225	110	2,560
1990	600	355	260	125	2,525
Oahu:					
1980	1,000	125	710	190	2,640
1989	950	125	450	200	2,425
1990	950	125	460	225	2,425
Kauai County:					
1980	300	275	200	60	1,540
1989	400	225	175	60	1,175
1990	400	225	200	60	1,140

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.

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

Table 556.-- VALUE OF CROP AND LIVESTOCK SALES, BY COUNTIES
OR ISLANDS: 1980, 1989, AND 1990

[\$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:						
1980	634,101	552,877	385,100	76,596	91,181	81,224
1989 <u>1/</u> ...	585,048	493,261	210,300	98,310	184,651	91,787
1990	588,844	500,400	213,800	99,255	187,345	88,444
Hawaii County:						
1980	215,640	193,169	137,500	-	55,669	22,471
1989 <u>1/</u>	207,445	174,741	56,900	-	117,841	32,704
1990	197,997	168,580	55,000	-	113,580	29,417
Maui County:						
1980	159,302	149,218	100,800	36,404	12,014	10,084
1989 <u>1/</u>	133,042	124,781	66,400	32,863	25,518	8,261
1990	144,488	135,654	69,600	36,975	29,079	8,834
Oahu:						
1980	165,131	122,194	63,200	40,192	18,802	42,937
1989 <u>1/</u>	179,670	133,608	35,500	65,447	32,661	46,062
1990	181,083	135,899	36,800	62,280	36,819	45,184
Kauai County:						
1980	94,028	88,296	83,600	(Z)	4,696	5,732
1989 <u>1/</u>	64,891	60,131	51,500	(Z)	8,631	4,760
1990	65,276	60,267	52,400	(Z)	7,867	5,009

Z Less than \$50,000.

1/ Revised from Data Book 1990, table 573.

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: 1980, 1989, AND 1990

Subject	1980	1989 ^{1/}	1990
Acreege in crop (1,000 acres):			
Sugarcane	217.7	170.8	162.0
Pineapples (land used for pineapple)	43.0	32.7	30.9
Vegetables and melons (harvested acreage) ..	3.9	5.0	5.3
Fruits, excluding pineapples	5.2	7.4	7.0
Coffee	1.9	3.0	5.3
Macadamia nuts	13.3	22.3	22.6
Miscellaneous crops	6.4	4.8	4.6
Number of crop farms:			
Sugar	380	70	55
Pineapples	18	10	10
Vegetables and melons	585	525	485
Fruits (excluding pineapples)	692	709	735
Coffee	650	635	620
Macadamia nuts	475	675	690
Taro	122	150	140
Flowers and nursery products	640	710	710
Volume of crop marketings:			
Sugar, unprocessed cane (1,000 tons)	9,214	7,082	6,538
Pineapples, fresh equivalent (1,000 tons) ..	657	580	575
Vegetables and melons (1,000 lb.)	70,710	83,250	84,920
Fruits, excluding pineapples (1,000 lb.) ...	67,800	109,980	105,310
Coffee, parchment (1,000 lb.)	1,440	3,200	2,700
Macadamia nuts, in shell (1,000 lb.)	33,390	50,500	50,000
Taro (1,000 lb.)	6,400	6,500	5,800
Value of crop sales (\$1,000):			
Sugar (unprocessed cane)	385,100	210,300	213,800
Pineapples (fresh equivalent)	76,596	98,310	99,255
Vegetables and melons	18,552	32,719	35,805
Fruits (excluding pineapples)	12,982	23,074	23,779
Coffee (parchment)	2,304	12,480	7,020
Macadamia nuts (in shell)	24,174	44,945	41,000
Taro	1,280	1,996	2,262
Field crops (not estimated separately)	4,101	6,981	6,882
Flowers and nursery products	27,688	62,206	70,347

^{1/} Revised from Data Book 1990, table 574.

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: 1990

Subject	Hawaii County	Maui County	Oahu	Kauai County
Acreage in crop (1,000 acres):				
Sugarcane	57.9	42.4	23.6	38.1
Pineapples (land used for pineapple)	-	18.2	12.7	(1/)
Vegetables and melons (harvested acreage)	1.5	2.9	0.8	0.1
Fruits, excluding pineapples	5.4	0.1	0.8	0.7
Coffee	5.3	-	-	-
Macadamia nuts	(D)	(D)	(D)	(D)
Miscellaneous crops	1.6	1.6	0.7	0.7
Number of crop farms:				
Sugar	45	2	3	5
Pineapples	-	5	2	3
Vegetables and melons	255	85	120	25
Fruits (excluding pineapples)	515	45	120	55
Coffee	620	-	-	-
Macadamia nuts	670	9	3	8
Taro	86	10	4	40
Flowers and nursery products	325	110	230	45
Volume of crop marketings:				
Sugar, unprocessed cane (1,000 tons)	1,945	1,903	1,115	1,575
Pineapples, fresh equivalent (1,000 tons).	-	345	230	(2/)
Vegetables and melons (1,000 lb.)	28,690	45,240	10,500	490
Fruits, excluding pineapples (1,000 lb.) .	84,960	685	5,775	13,890
Coffee, parchment (1,000 lb.)	2,700	-	-	-
Macadamia nuts, in shell (1,000 lb.)	(D)	(D)	(D)	(D)
Taro (1,000 lb.)	1,300	(D)	(D)	3,620
Value of crop sales (\$1,000):				
Sugar (unprocessed cane)	55,000	69,600	36,800	52,400
Pineapples (fresh equivalent)	-	36,975	62,280	(3/)
Vegetables and melons	13,867	14,044	7,616	278
Fruits (excluding pineapples)	18,894	289	2,038	2,558
Coffee (parchment)	7,020	-	-	-
Macadamia nuts (in shell)	(D)	(D)	(D)	(D)
Taro	528	(D)	(D)	1,379
Field crops (not estimated separately) ...	89	3,783	1,058	1,952
Flowers and nursery products	33,767	9,092	25,892	1,596

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 1990.

Table 559.-- VEGETABLES, MELONS, FRUITS, NUTS, COFFEE, AND TARO: 1990

[Data shown for crops with sales in excess of \$1,000,000]

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:					
Chinese cabbage	390	17.7	6,900	22.8	1,573
Head cabbage	690	21.3	14,700	19.5	2,867
Cucumbers	210	16.9	3,550	41.0	1,456
Ginger root	190	50.0	9,500	71.5	6,792
Lettuce (head, semi-head)	300	11.0	3,300	42.0	1,386
Dry onions	120	9.7	1,160	102.5	1,189
Green onions	200	8.3	1,660	100.3	1,665
Green peppers	150	10.4	1,560	70.0	1,092
Tomatoes	230	20.0	4,600	65.0	2,990
Watermelons	700	21.1	14,800	13.2	1,954
Watercress	35	...	1,300	106.0	1,378
Fruits:					
Bananas	930	12.2	11,300	38.0	4,294
Guavas	1,040	...	22,130	15.0	3,320
Papayas	2,400	28.5	68,500	21.6	14,805
Macadamia nuts (1990-1991)	18,400	2.7	54,300	75.5	41,000
Coffee (1990-1991)	2,400	1.1	2,700	260	7,020
Taro	420	...	5,800	39.0	2,262

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

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture 1990.

Table 560.-- SUGARCANE ACREAGE, BY TYPE OF IRRIGATION:
1972 TO 1990

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
1989	170,816	86,030	16,687	68,099
1990	161,991	83,252	15,129	63,610

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: 1988 TO 1990

[1,000 pounds, net]

Source	1988	1989	1990
Total arrivals	305,494	303,526	290,606
From Hawaii	101,541	91,881	88,631
Oahu <u>1/</u>	36,736	33,314	29,215
Other islands <u>2/</u>	64,805	58,567	59,416
Hawaii <u>2/</u>	31,257	30,203	27,123
Maui <u>2/</u>	16,007	15,388	15,137
Molokai <u>2/</u>	16,548	12,667	16,938
Kauai <u>2/</u>	993	309	218
From U.S. Mainland <u>2/</u>	195,516	205,915	194,610
From foreign countries <u>2/</u>	8,437	5,730	7,365

1/ Wholesalers' truck receipts.

2/ Ship and plane arrivals.

Source: Hawaii State Department of Agriculture, Market News Service, Honolulu Arrivals, Fresh Fruits and Vegetables, 1990 (June 1991), table 1.

Table 562.-- GOVERNMENT PAYMENTS FOR AGRICULTURE: 1982 TO 1990

[\$1,000]

Year	Amount	Year	Amount	Year	Amount
1982	586	1985	1,184	1988	465
1983	6,775	1986	2,810	1989	396
1984	2,675	1987	344	1990	657

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

Table 563.-- LIVESTOCK INVENTORY, 1980 TO 1990, AND BY GEOGRAPHIC AREAS, 1990

[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 colonies
1980	220	13	57	1,314	7
1981	228	13	55	1,242	7
1982	230	12	49	1,148	8
1983	226	12	48	1,140	9
1984	221	12	47	1,195	9
1985	209	11	55	1,210	9
1986	199	12	50	1,185	9
1987	203	12	47	1,212	9
1988	212	12	43	1,217	9
1989	205	11	39	1,216	9
1990	214	11	36	1,183	10
GEOGRAPHIC AREAS: 1990					
Hawaii County	138.9	1.7	2.6	(D)	(NA)
Maui	29.6	0.9	7.7	(D)	(NA)
Molokai and Lanai	7.3	-	0.7	(D)	(NA)
Oahu	26.3	7.7	21.7	971	(NA)
Kauai County	11.9	0.5	3.3	(D)	(NA)

NA Not available.

D Withheld to avoid disclosing data for individual operations.

1/ As of January 1 of the following year.

2/ As of December 1.

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: 1980, 1989, AND 1990

Subject	1980	1989 ^{1/}	1990
Number of livestock operations, Dec. 31:			
Cattle ^{2/}	850	900	900
Hogs	650	550	500
Milk	80	80	80
Eggs	60	55	55
Broilers	10	8	8
Honey	27	11	12
Volume of livestock marketings:			
Beef (dressed weight; 1,000 lb.) ^{3/}	28,809	34,450	29,071
Pork (dressed weight; 1,000 lb.)	8,012	7,716	6,850
Milk (million lb.)	149.4	151.5	148.6
Eggs (million)	220.5	226.6	227.5
Broilers and chickens (1,000 lb.) ^{4/}	7,890	7,967	7,266
Honey (1,000 lb.)	861	1,215	1,570
Value of livestock sales (\$1,000):			
Cattle ^{5/}	28,074	31,483	28,735
Hogs ^{5/}	7,451	7,911	7,252
Milk	27,071	31,588	30,760
Eggs	13,910	14,956	16,115
Broilers and chickens	4,181	4,792	4,334
Other ^{6/}	531	1,057	1,248

^{1/} Revised from Data Book 1990, table 581.

^{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: 1990

Subject	Hawaii County	Maui County	Oahu	Kauai County
Number of livestock operations, Dec. 31:				
Cattle <u>1/</u>	440	220	80	160
Hogs	80	80	250	90
Milk	41	7	20	12
Eggs	25	7	19	4
Broilers	-	-	7	1
Honey	7	3	-	2
Volume of livestock marketings:				
Beef <u>2/</u> (dressed weight; 1,000 lb.)	23,388	3,132	1,308	1,243
Pork (dressed weight; 1,000 lb.)	530	1,570	3,868	882
Milk (million lb.)	(D)	(D)	112.1	(D)
Eggs (million)	(D)	(D)	181.0	(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>	23,101	3,324	1,250	1,060
Hogs <u>4/</u>	569	1,727	3,945	1,011
Milk	(D)	(D)	23,384	(D)
Eggs	(D)	(D)	12,627	(D)
Broilers and chickens	(D)	(D)	(D)	(D)
Other <u>5/</u>	784	167	50	247

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 1990.

Table 566.-- CATTLE OPERATIONS, BY SIZE GROUP, BY ISLANDS: 1989

Head of cattle	State total	Ha-waii	Maui	Molokai, Lanai	Oahu	Kauai, Niihau
All operations	900	440	180	30	80	170
1 to 19 head	580	290	120	20	40	110
20 head or more	320	150	60	10	40	60

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture 1989, p. 75.

Table 567.-- LARGE RANCHES: 1991

Ranch	Island	Head of cattle	Acres of pasture <u>1/</u>
Parker Ranch	Hawaii	50,000	210,000
Molokai Ranch, Ltd.	Molokai	6,000	40,000
Ponoholo Ranch	Hawaii	5,300	10,000
Haleakala Ranch Co.	Maui	5,200	26,000
Ulupalakua Ranch	Maui	5,000	20,000
Kahua Ranch	Hawaii	4,330	14,000
Palani Ranch	Hawaii	4,300	23,000
Kahuku Ranch	Hawaii	4,200	14,000
Makaweli Ranch	Kauai	3,000	45,000
Puuwaawaa Ranch	Hawaii	3,000	40,000
McCandless Ranch	Hawaii	3,000	20,000
Hana Ranch	Maui	2,500	3,000
Niihau Ranch	Niihau	2,200	46,000

1/ Approximate total. Some figures include ungrazed acreage.

Source: Jan TenBruggencate, "After Parker Ranch, which is the largest?" Honolulu Advertiser, March 27, 1991, p. A15.

Table 568.-- FLORICULTURE AND NURSERY PRODUCTS, 1988 TO 1990,
AND BY ISLANDS, 1990

Island and year	Number of farms	Growing area					Wholesale value (\$1,000)
		Total (acres)	Greenhouse (1,000 sq. ft.)	Artificial shade structure (1,000 sq. ft.)	Natural shade area (acres)	Open field (acres)	
State total:							
1988	675	1,833	4,690	23,800	70	1,109	59,551
1989	710	2,206	3,615	25,395	50	1,490	62,206
1990	710	2,298	5,695	23,385	35	1,595	70,347
Islands, 1990:							
Hawaii	325	1,109	4,800	15,425	35	610	33,767
Kauai	45	92	20	285	-	85	1,596
Maui/Molokai .	110	529	265	1,195	-	495	9,092
Oahu	230	568	610	6,480	-	405	25,892

Source: Hawaii Agricultural Statistics Service, Hawaii Flowers & Nursery Products, Annual Summary (August 8, 1991), pp. 10 and 13.

Table 569.-- OUT-OF-STATE SALES OF FLORICULTURE AND NURSERY PRODUCTS: 1986 TO 1990

[\$1,000. Based on F.O.B. island value. Includes both wholesale and retail sales]

Type	1986	1987	1988	1989	1990
Total sales ...	28,136	31,904	33,042	37,475	37,734
Anthuriums, cut	8,653	9,170	8,816	9,280	11,185
Foliage, potted	9,782	8,935	8,609	8,130	8,525
Other flowers, nursery products .	9,701	13,799	15,617	20,065	18,024

Source: Hawaii Agricultural Statistics Service, Hawaii Flowers and Nursery Products, Annual Summary (August 8, 1991), p. 15.

Table 570.-- FLORICULTURE AND NURSERY PRODUCTS, BY COMMODITY: 1990

[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	141	1,000 dozens	1,300	7,527
Birds of Paradise	59	1,000 dozens	135	877
Ginger, pink	82	1,000 dozens	104	789
Ginger, red	112	1,000 dozens	162	844
Heliconias	117	1,000 dozens	220	1,339
Proteas	39	1,000 stems	1,343	976
Roses, Tea	13	1,000 dozens	716	2,533
Orchids:				
Sprays: Dendrobium	82	1,000 dozens	408	2,694
Potted: Dendrobiums	75	1,000 pots	540	2,885
Lei flowers:				
Carnations	21	Million blooms	20.8	1,069
Dendrobiums	52	Million blooms	26.0	755
Tuberose	7	Million blooms	30.4	981
Foliage:				
Potted, primarily for--				
Indoor or patio use	77	...	(NA)	14,591
Landscape use	66	...	(NA)	3,397
Unfinished stock (for further growing on)	26	...	(NA)	1,151
Potted flowering plants:				
Chrysanthemums	8	1,000 pots	230	869
Poinsettias	33	1,000 pots	290	1,144
Ornamentals and trees	70	...	(NA)	7,067
Plant rentals	48	...	(NA)	3,673

NA Not available.

Source: Hawaii Agricultural Statistics Service, Hawaii Flowers & Nursery Products, Annual Summary (August 8, 1991), pp. 3-9.

Table 571.-- MARKET SUPPLY OF SPECIFIED FOODS: 1980, 1989, AND 1990

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:					
1980	80,586	61,926	18,660	76.4	23.2
1989 <u>3/</u>	186,116	92,896	93,220	149.4	50.1
1990	208,948	89,753	119,195	166.4	57.0
Fresh market vegetables:					
1980	172,724	105,414	67,310	163.8	39.0
1989 <u>3/</u>	227,153	159,003	68,150	182.4	30.0
1990	218,538	149,638	68,900	174.0	31.5
Beef and veal: <u>4/</u>					
1980	94,359	65,550	28,809	89.5	30.5
1989	113,653	79,203	34,450	91.3	30.3
1990	111,537	82,466	29,071	88.8	26.1
Pork: <u>4/</u>					
1980	34,830	26,818	8,012	33.0	23.0
1989	42,491	34,775	7,716	34.1	18.2
1990	41,762	34,912	6,850	33.3	16.4
Chickens:					
1980	33,345	25,455	7,890	31.6	23.7
1989	46,743	38,776	7,967	37.5	17.0
1990	48,929	41,663	7,266	39.0	14.9
Eggs:					
1980	20,746	2,371	18,375	19.7	88.6
1989 <u>3/</u>	20,609	1,726	18,883	16.5	91.6
1990	20,595	1,637	18,958	16.4	92.1

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 1990, table 586.

4/ Carcass weight equivalent.

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

Table 572.-- 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 573.-- 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 574.-- AQUACULTURE INDUSTRY OPERATIONS: 1970 TO 1990

Year	Number of operations, Dec. 31		Acreage, Dec. 31	Produc- tion (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	44	12	477	1,170	5,560
1989	46	10	479	1,264	6,835
1990	53	10	489	1,452	9,241

Source: Hawaii State Department of Land and Natural Resources, Aquaculture Development Program, records, October 9, 1991.

Table 575.-- AQUACULTURE OPERATIONS, ACREAGE, PRODUCTION, AND VALUE,
BY COUNTIES: 1990

Subject	State total	Hawaii	Maui	Honolulu	Kauai
Number of operations ...	53	21	5	22	5
Prawn producers	10	-	-	10	-
Acreage (Dec. 31)	489	84	13	377	15
Production (1,000 lb.)..	1,452.0	580.4	14.3	855.8	1.0
Shellfish	598.6	20.0	14.0	563.6	1.0
Finfish	277.0	130.3	.3	145.9	(NA)
Algae	576.4	430.1	-	146.3	-
Other <u>1/</u>	(NA)	(NA)	(NA)	(NA)	(NA)
Value (\$1,000)	9,241.1	5,013.6	76.9	4,148.1	2.5
Shellfish	3,002.3	120.0	76.0	2,803.8	2.5
Finfish	991.5	508.9	.9	481.7	(NA)
Algae	4,171.9	3,799.2	-	372.7	-
Other <u>1/</u>	1,075.4	585.5	(NA)	489.9	(NA)

NA Not available.

1/ Nonfood products: ornamental fish, seedstock, other.

Source: Hawaii State Department of Land and Natural Resources,
Aquaculture Development Program, October 9, 1991.