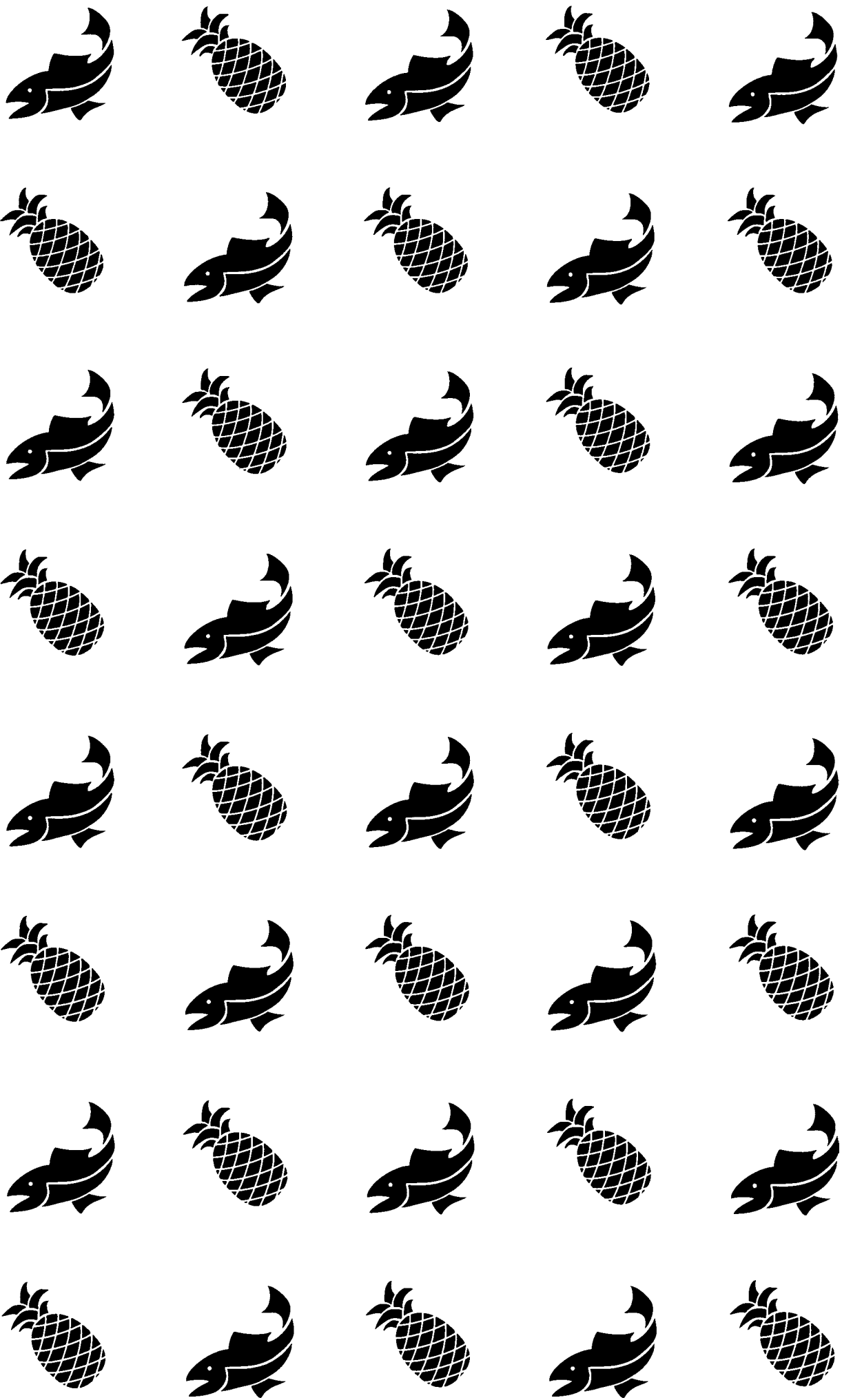


Agriculture & Aquaculture



Section 5

AGRICULTURE & AQUACULTURE

This section includes statistics on agriculture and aquaculture. Statistics about farms are presented along with the value and distribution of farm and other land based herbaculture production. Fish catches and other aquaculture statistics are given.

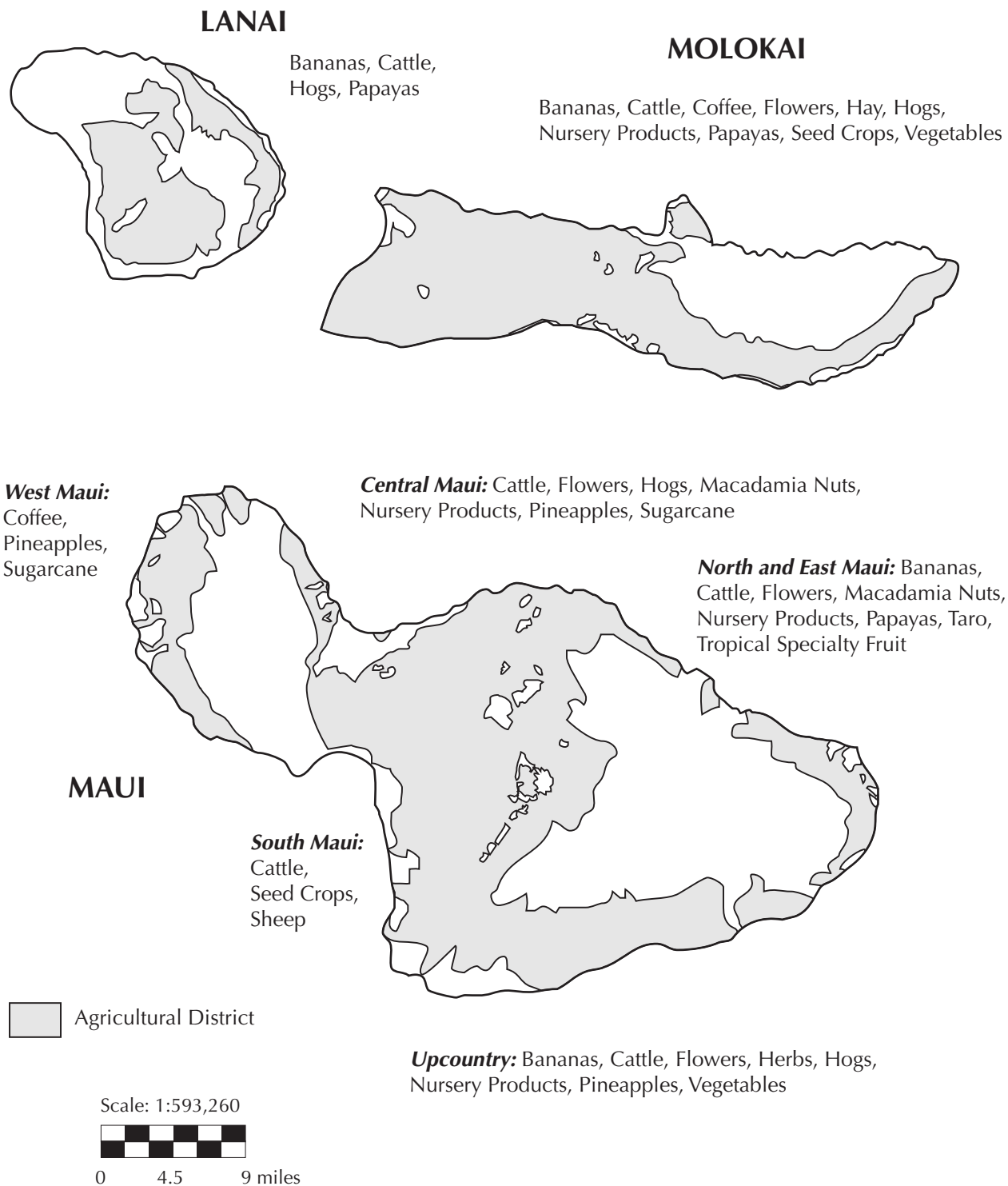
Agriculture remains an important element in Maui County's economy and land use patterns. Sugar and pineapple remain the largest crops, though the trend toward diversification of agriculture continues.

The value of commercially caught fish has been generally declining since 1986 and this trend continued through 1993, although there has been a rise since 1994. Commercial aquaculture continues to grow in importance.

The data in this section comes mainly from the U.S. Bureau of Census, the Hawaii Agriculture Statistics Service, specific crop producers, and the Hawaii State Department of Land and Natural Resources.

5.1.1

**AGRICULTURAL AREAS,
MAUI COUNTY**



Source: Hawaii Agricultural Statistics Service, *Statistics of Hawaii Agriculture*, 2000.

5.1.2

TENURE AND CHARACTERISTICS OF FARM OPERATORS AND TYPES OF FARM ORGANIZATION, MAUI COUNTY

	1987	1992	1997
Farms	722	850	806
Land In Farms (acres)	359,310	355,786	292,090
Tenure of Operator			
Full Owners			
Farms	397	503	460
Acres	89,698	118,137	81,616
Part Owners			
Farms	155	159	137
Acres	234,912	225,867	188,649
Owned land in farms (acres)	D	141,136	140,909
Rented land in farms (acres)	D	84,731	47,740
Tenants			
Farms	170	188	209
Acres	34,700	11,782	21,825
Operator Characteristics			
Place of Residence			
On farm operated	480	577	536
Not on farm operated	218	219	215
Not reported	44	54	55
Principal Occupation			
Farming	398	456	372
Other	324	394	434
Days of Work Off Farm			
None	264	298	290
Any	408	482	455
1 to 49 days	55	55	59
50 to 99 days	38	31	33
100 to 149 days	52	62	40
150 to 199 days	37	71	46
200 days or more	226	263	277
Not reported	50	70	61
Years on Present Farm			
2 years or less	80	44	42
3 or 4 years	77	136	47
5 to 9 years	151	171	171
10 years or more	296	360	406
Average years on present farm	12.7	13.1	14.3
Not reported	118	139	140

5.1.2

CONTINUED

	1987	1992	1997
Operator Characteristics (cont.)			
Age Group			
Under 25 years	2	2	7
25 to 34 years	75	44	24
35 to 44 years	199	259	182
45 to 54 years	119	221	270
55 to 59 years	63	50	107
60 to 64 years	95	62	59
65 to 69 years	74	74	45
70 years and over	95	138	112
Average age	52.0	52.6	53.0
Male			
Farms	626	737	681
Acres	346,566	318,121	275,346
Female			
Farms	96	113	125
Acres	12,744	37,665	16,744
Type of Organization			
Individual or Family (sole proprietorship)			
Farms	593	710	679
Acres	47,363	53,463	31,942
Partnership			
Farms	59	52	44
Acres	21,535	D	34,620
Corporation (family held)			
Farms	44	46	56
Acres	D	90,740	101,236
Corporation (other than family held)			
Farms	12	26	13
Acres	D	192,428	123,312
Other (cooperative, estate or trust, institutional, etc.)			
Farms	14	16	14
Acres	10,161	D	980

D: Withheld to avoid disclosing data for individual farms.

SOURCES: U.S. Bureau of the Census, *1987 Census of Agriculture, Geographic Area Series, Hawaii, State and County Data*, AC87-A-11 (August 1989), chapter 2, table 10; *1992 Census of Agriculture, Geographic Area Series, Hawaii, State and County Data*, AC92-A-11 (1994), chapter 2, table 11, p. 161-162; U.S. Department of Agriculture, National Agricultural Statistics Service, *1997 Census of Agriculture, Geographic Area Series, Hawaii, State and County Data*, (1998), chapter 2, table 11, p. 163-164.

5.1.3

FARMS AND LAND IN FARMS, MAUI COUNTY

	1987	1992	1997
Farms	722	850	806
Land in Farms	359,310	355,786	292,090
Average size of farm (acres)	498	419	362
Median size of farm (acres)	NA	NA	6
Estimated Market Value of Land and Buildings¹			
Average per farm	873,008	1,118,184	818,342
Average per acre	1,754	2,671	2,258
Estimated Market Value of All Machinery and Equipment¹			
Average per farm	81,608	117,143	88,989
Farms by Size			
1 to 9 acres	365	505	468
10 to 49 acres	223	232	233
50 to 179 acres	79	60	48
180 to 499 acres	25	24	29
500 to 999 acres	5	3	5
1,000 acres or more	25	26	23
Total Cropland			
Farms	573	733	684
Acres	89,439	D	D
Harvested Cropland			
Farms	496	666	605
Acres	42,952	39,031	32,243
Irrigated Land			
Farms	410	541	480
Acres	67,198	61,549	35,031
Market Value of Agricultural Products Sold (\$1,000)	153,313	164,767	128,385
Crops, including nursery and greenhouse crops	140,722	153,285	116,084
Livestock, poultry, and their products	12,591	11,483	12,301
Average Market Value of Agricultural Products Sold per Farm (\$)	212,345	193,844	159,287

¹ Data are based on a sample of farms.

D: Withheld to avoid disclosing data for individual farms.

NA: Not available.

SOURCES: U.S. Bureau of the Census, *1987 Census of Agriculture, Geographic Area Series, Hawaii, State and County Data*, AC87-A-11 (August 1989), chapter 2, table 1, p. 130; *1992 Census of Agriculture, Geographic Area Series, Hawaii, State and County Data*, AC92-A-11 (1994), chapter 2, table 1, p. 148; U.S. Department of Agriculture, National Agricultural Statistics Service, *1997 Census of Agriculture, Geographic Area Series, Hawaii, State and County Data*, (1998), chapter 2, table 1, p. 150.

5.1.4

NUMBER OF FARMS, FARM ACREAGE, AND FARM EMPLOYMENT, MAUI COUNTY

	1996	1997	1998	1999	2000	2001
Number of Farms ¹	800	800	800	800	800	800
Farm Acreage (1,000) ²	290	290	290	290	290	290
Farm Employment ³						
Self-employed farm operators	300	300	350	450	500	500
Unpaid workers ⁴	150	100	150	200	150	150
Hired workers	1,850	1,850	1,950	2,200	2,000	1,800

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 Average of quarterly data.

⁴ Includes family members and others working 15 or more hours per week.

SOURCE: Hawaii Agricultural Statistics Service, *Statistics of Hawaii Agriculture 2001* (annual, http://www.nass.usda.gov/hi/stats/t_of_c.htm).

5.1.5

LIVESTOCK: NUMBER OF OPERATIONS AND VALUE OF SALES, MAUI COUNTY

	1997	1998	1999	2000	2001
Number of Livestock Operations, December 31					
Cattle ¹	180	180	170	170	170
Hogs	60	50	60	60	60
Milk	5	5	4	4	4
Eggs	7	8	8	8	8
Honey	5	D	D	D	D
Value of Livestock Sales (\$1,000)					
Cattle ²	3,003	3,641	2,865	3,230	2,438
Hogs ³	1,008	825	894	935	839
Milk	D	D	D	D	D
Eggs	D	D	D	D	D
Total livestock sales⁴	9,813	10,557	5,890	6,395	5,419

D: Withheld to avoid disclosure of individual operations.

¹ Includes beef, dairy, and dairy replacement operations.

² Excludes interfarm sales; includes out-of-state sales of slaughter cattle and feeder calves.

³ Excludes interfarm sales; includes out-of-state sales of slaughter animals.

⁴ Sum of individual commodities may not add to total. Includes sheep, wool, turkeys, horses, honey, beeswax, broilers and chickens.

SOURCE: Hawaii Agricultural Statistics Service, *Statistics of Hawaii Agriculture 2001* (annual, http://www.nass.usda.gov/hi/stats/t_of_c.htm).

5.1.6

CROPS: ACREAGE, NUMBER OF FARMS, AND VALUE OF SALES, MAUI COUNTY

	1997	1998	1999	2000	2001
Acres in Crop (1,000 acres)					
Sugarcane	43.1	42.9	43.3	36.9	35.4
Pineapples (land used for pineapple)	9.1	9.6	9.1	11.6	9.1
Vegetables and melons (harvested acreage) ¹	1.4	1.6	1.4	1.3	1.2
Fruits (excluding pineapples)	0.3	0.3	0.3	0.3	0.3
Coffee	D	D	D	D	D
Macadamia nuts	D	D	D	D	D
All other crops ²	1.7	1.9	1.9	1.9	2.1
Number of Crop Farms					
Sugar	2	2	2	1	1
Pineapples ³	4	5	5	5	2
Vegetables and melons	105	114	145	120	100
Fruits (excluding pineapples)	86	262	251	231	193
Coffee	D	D	D	D	D
Macadamia nuts	D	D	D	D	D
Taro	15	14	13	15	25
Flowers and nursery products	106	145	150	140	150
Value of Crop Sales (\$1,000)					
Sugar (unprocessed cane)	53,900	58,700	60,200	43,900	44,900
Pineapples (fresh equivalent)	28,295	28,413	28,325	29,445	27,115
Vegetables, ginger root, herbs, and melons	11,762	11,755	9,519	9,569	10,125
Fruits (excluding pineapples)	1,136	1,051	1,056	1,102	921
Coffee (parchment)	D	D	D	D	D
Macadamia nuts (in-shell)	D	D	D	D	D
Taro	D	D	D	D	D
Seed crops	D	D	D	D	D
Flowers and nursery products ⁴	8,219	8,951	9,851	9,947	9,866
Total crops ⁵	121,072	124,816	125,375	110,603	108,860

D: Withheld to avoid disclosure of individual operations.

¹ Includes ginger root.

² Includes taro, seed corn, feed and forage crops (excluding pineapple feed products), and flowers, foliage and nursery products.

³ Includes specialty pineapple.

⁴ Flowers, foliage, and nursery products.

⁵ Total crop values shown are actual. Sum of individual commodities may not add to total. Forage crops' and Forest product's value combined and included in total crop value.

SOURCE: Hawaii Agricultural Statistics Service, *Statistics of Hawaii Agriculture 2001* (annual, http://www.nass.usda.gov/hi/stats/t_of_c.htm).

5.1.7

SUGARCANE, MAUI ISLAND

	1997	1998	1999	2000	2001
Number of farms¹	2	2	2	1	1
Acreage (1,000 acres)					
In crop ¹	42.4	42.9	43.3	36.9	35.4
Harvested for sugar	19.7	19.0	21.5	18.6	15.1
Yield per acre (tons)²					
Sugarcane	90.6	93.8	91.9	86.7	98.7
Raw Sugar 96°	11.36	12.48	11.86	11.29	12.7
Production of cane for sugar (1,000 tons)	1,784	1,783	1,975	1,613	1,491
Farm price (dollars per ton)	30.20	32.90	30.50	27.20	30.10
Value of cane for sugar (\$1,000,000)³	53.9	58.7	60.2	43.9	44.9
Mill Production (1,000 tons)					
Raw Sugar 96°	224	237	255	210	191
Molasses ⁴	90	85	99	71	72
Average returns received (dollars per ton)⁵					
Raw Sugar 96°	359	369	352	311	352
Molasses ⁴	38.00	23.10	13.20	26.20	49.00
Value of production (\$1,000,000)					
Raw Sugar 96°	80.4	87.5	89.8	65.3	67.2
Molasses ⁴	3.4	2.0	1.3	1.9	3.5
Total	83.8	89.5	91.1	67.2	70.7

¹ At end of year.

² Yield and farm price may not compute exactly due to rounding.

³ Value of cane for sugar estimated by deducting processing and marketing costs from value of sugar and molasses. Processing costs based on toll charges by independent producers.

⁴ Commercial.

⁵ Derived from production and value. Prices may not compute exactly due to rounding.

SOURCE: Hawaii Agricultural Statistics Service, *Statistics of Hawaii Agriculture 2001* (annual, http://www.nass.usda.gov/hi/stats/t_of_c.htm); primary data source, Hawaii Agricultural Research Center (formerly Hawaii Sugar Planters' Association).

5.1.8

**VEGETABLES, MELONS AND TARO,
ACREAGE, PRODUCTION AND VALUE,
MAUI COUNTY**

Commodity	1996	1997	1998	1999	2000	2001
HARVESTED ACREAGE¹						
Beans, snap	37	45	95	90	70	55
Cabbage, head	315	300	280	210	190	170
Celery	20	20	20	25	25	25
Corn, sweet	50	25	40	55	D	D
Cucumbers	140	155	170	145	160	155
Lettuce	25	15	15	D	D	D
Onions, dry	200	180	235	190	190	150
Onions, green	15	10	15	D	D	D
Peppers, green	15	5	D	D	D	D
Romaine	85	90	110	95	55	55
Squash, Italian	35	40	50	70	65	60
Sweet potatoes	95	70	65	70	65	50
Tomatoes	215	245	155	D	D	D
Watermelon	60	5	10	D	D	D
Other Vegetables & Melons ²	258	250	280	450	495	485
Total Vegetables & Melons	1,565	1,455	1,540	1,400	1,315	1,205
Taro (acreage in crop) ³	85	85	95	90	100	100
PRODUCTION (1,000 pounds)						
Beans, snap	245	350	500	570	550	500
Cabbage, head	7,300	6,700	7,300	5,700	5,300	4,650
Celery	300	370	470	500	350	500
Corn, sweet	185	130	170	240	D	D
Cucumbers	2,500	2,600	2,900	2,300	2,500	2,490
Lettuce	200	100	55	D	D	D
Onions, dry	1,980	1,690	3,000	2,900	2,700	2,150
Onions, green	120	105	125	D	D	D
Peppers, green	160	60	D	D	D	D
Romaine	960	1,150	1,900	1,100	600	550
Squash, Italian	380	350	470	750	980	800
Sweet potatoes	1,100	800	750	600	620	380
Tomatoes	5,580	8,070	5,800	D	D	D
Watermelon	1,750	95	140	D	D	D
Other Vegetables & Melons ²	3,460	3,730	3,625	7,280	6,625	6,405
Total Vegetables & Melons	26,220	26,300	27,205	21,940	20,225	18,425
Taro (marketings) ³	1,100	900	1,100	1,400	1,300	1,300

5.1.8

CONTINUED

Commodity	1996	1997	1998	1999	2000	2001
	VALUE (\$1,000)					
Beans, snap	256	359	416	496	468	473
Cabbage, head	1,351	1,380	1,314	1,009	970	944
Celery	79	102	120	125	98	152
Corn, sweet	114	98	117	161	D	D
Cucumbers	988	832	1,018	840	988	1,068
Lettuce	80	41	23	D	D	D
Onions, dry	2,344	1,658	2,367	2,062	2,066	1,993
Onions, green	132	111	121	D	D	D
Peppers, green	79	30	D	D	D	D
Romaine	341	414	646	352	244	214
Squash, Italian	181	179	235	334	480	400
Sweet potatoes	558	432	426	360	372	228
Tomatoes	2,751	4,064	2,917	D	D	D
Watermelon	277	18	29	D	D	D
Other Vegetables & Melons ²	1,308	1,351	1,334	2,911	3,045	3,552
Total Vegetables & Melons	10,839	11,069	11,083	8,650	8,731	9,024
Taro ³	568	450	577	736	684	691

D: Not reported to avoid disclosure of individual operations.

¹ For vegetables and melons, acreage harvested (e.g., one acre planted and harvested three times during the year equals three harvested acres). For lotus root, watercress and taro, average acreage in crop during the year.

² Only selected items are shown separately. All other vegetables and melons for the island are included in the other vegetables and melons category.

³ Oahu combined with Maui and Molokai to avoid disclosure of individual operations.

SOURCE: Hawaii Agricultural Statistics Service, *Statistics of Hawaii Agriculture 2001* (annual, http://www.nass.usda.gov/hi/stats/t_of_c.htm).

5.1.9

FLORICULTURE AND NURSERY PRODUCTS, MAUI COUNTY

Number of farms and growing area

	Number of Farms	Greenhouse (1,000 sq ft)	Artificial Shade (1,000 sq ft)	Natural Shade (Acres)	Open Field (Acres)	Total (Acres)
State Total						
1998	745	2,810	24,200	9	2,050	2,679
1999	855	2,810	24,510	7	2,325	2,959
2000	735	3,235	25,180	7	2,060	2,719
2001	790	3,175	26,660	9	2,355	3,049
2002	805	2,690	29,055	10	2,685	3,424
Maui/Molokai						
1998	145	280	475	0	435	452
1999	154	325	605	0	415	436
2000	145	345	685	0	515	539
2001	150	425	730	0	565	592
2002	150	400	685	0	525	181

* Less than 1/2 acre.

Source: Hawaii Agricultural Statistics Service, *Hawaii Flowers and Nursery Products (annual, 2001)*, *Statistics of Hawaiian Agriculture (annual, 2000)*, available at http://www.nass.usda.gov/hi/stats/t_of_c.htm

5.1.10

FLORICULTURE AND NURSERY PRODUCTS, BY COMMODITY, MAUI COUNTY

Value of grower sales (\$1,000)

Commodity	1998	1999	2000	2001 ^r	2002
Cut Flowers ¹	2,854	3,051	2,926	2,556	2,895
Orchids	D	999	1,027	1,111	981
Lei Flowers	D	D	D	D	D
Foliage ³	D	628	543	D	D
Potted Flowering Plants	D	1,229	1,121	1,135	1,112
All Other Nursery Products ⁴	5,763	3,589	3,976	4,866	5,533
Unspecified Sales ⁵	334	355	325	230	230
Total	8,951	9,851	9,918	9,898	10,751

D: Data not shown separately to avoid disclosure of individual operations.

^r Revised

¹ Cut orchids included in "Orchids" category.

² Excludes orchids used for lei flowers.

³ Includes potted, cut and unfinished. Beginning 1998, landscape foliage included with "all other nursery products."

⁴ Includes bedding plants, plant rentals, sod, trees, and any other nursery products not elsewhere classified.

⁵ Includes grower sales greater than \$999 but less than \$10,000 which were not categorized.

Source: Hawaii Agricultural Statistics Service, *Hawaii Flowers and Nursery Products (annual, 2002)*, *Statistics of Hawaiian Agriculture (annual, 2002)*, available at http://www.nass.usda.gov/hi/stats/t_of_c.htm

5.1.11

FRUITS: VALUE OF SALES, MAUI COUNTY

1,000 dollars (Fresh weight basis)

	Pineapples	Other	Total
Maui/Molokai/Lanai			
1993	24,890	779	25,669
1994	25,150	984	26,134
1995	24,775	1,031	25,806
1996	27,144	858	28,002
1997	28,295	1,136	29,431
1998	28,413	1,051	29,464
1999	28,325	1,056	29,381
2000	29,445 ^R	1,102	30,497
2001	27,115	921	28,036

^R Revised

SOURCE: Hawaii Agricultural Statistics Service, *Statistics of Hawaii Agriculture 2001* (annual, http://www.nass.usda.gov/hi/stats/t_of_c.htm).

5.1.12

BANANAS, MAUI COUNTY

	1997	1998	1999	2000	2001
Maui/Molokai/Lanai					
Number of Farms	19	35	40	40	30
Acreage in crop ¹	75	85	85	75	85
Acreage harvested ²	45	50	50	60	60
Yield per acre (1,000 lbs. harvested)	15.6	16.0	17.8	12.5	9.7
Fresh utilization (1,000 pounds)	700	800	890	750	580
Farm price (cents per pound)	54.5	55.0	56.0	60.0	58.0
Value of sales (\$1,000)	382	440	499	451	333

SOURCE: Hawaii Agricultural Statistics Service, *Statistics of Hawaii Agriculture 2001* (annual, http://www.nass.usda.gov/hi/stats/t_of_c.htm).

5.2.1

COMMERCIAL MARINE LANDINGS, MAUI COUNTY

Year ended June 30

Year	Pounds Landed	Pounds Sold	Value (\$)
1982	792,504	734,258	873,251
1983	944,045	899,995	1,109,356
1984	889,715	810,257	1,083,651
1985	862,333	810,599	1,140,578
1986	1,007,255	915,637	1,659,720
1987	1,120,497	1,026,307	1,919,196
1988	961,337	851,858	1,780,096
1989	698,000	596,620	1,363,703
1990	777,385	624,466	1,428,937
1991	744,805	602,325	1,390,838
1992	854,282	692,870	1,596,576
1993	516,909	409,498	1,050,460
1994	624,147	486,682	1,226,805
1995	731,447	586,398	1,597,826
1996	783,394	620,343	1,577,195
1997	663,203	507,255	1,409,797
1998	748,149	605,174	1,464,070
1999	725,445	555,477	1,562,511
2000	643,581	501,263	1,502,897
2001	573,566	431,781	1,336,420

SOURCE: State of Hawaii, Department of Land and Natural Resources, Division of Aquatic Resources, *Commercial Marine Landings, State of Hawaii*, fiscal year reports.

5.2.2

SEA SPECIES COMMONLY CAUGHT NEAR FISH AGGREGATING DEVICES, MAUI COUNTY

Pounds landed in year ending June 30

Species	1998	1999	2000	2001
Aku	19,809	42,012	18,538	10,642
Bigeye	1,234	1,449	554	—
Yellowfin	33,108	41,447	18,508	29,136
Kawakawa	124	150	105	—
Tuna (misc.)	1,149	598	1,140	—
Blue Marlin	28,230	15,677	20,785	7,204
Striped Marlin	1,393	3,707	2,409	921
Sailfish	59	—	118	—
Shortbill Spearfish	567	2,947	1,345	336
Kahala	—	—	12	—
Kamanu	44	21	13	—
Keokeo	—	—	1	—
Mahimahi	32,634	44,480	37,528	42,905
Mako	—	410	—	—
Mano	824	255	100	—
Ono	8,403	7,785	7,143	9,014
Opelu	—	83	—	—
Uku	—	15	—	—
Other	1,058	119	169	—
Total	128,636	161,155	108,468	100,158
Devices Available	15	16	15	16

NOTE: Fish aggregating devices are non—navigational buoys placed several miles offshore to attract fish. Data is incomplete due to late submission and processing of fish catch records.

SOURCE: State of Hawaii, Department of Land and Natural Resources, Division of Aquatic Resources, *Commercial Marine Landings, State of Hawaii*, fiscal year reports.

5.2.3

FAD CATCHES AND TRIP COUNT, MAUI COUNTY

FAD	Location	No. of Months Station On	Lbs. ¹	No. of Trips ¹	Lbs/ Trip
I	Halona Pt.	12.0	3,571	68	52.5
K	Palaoa	11.5	13,217	334	39.6
M	Hana Bay	12.0	4,780	47	101.7
N	Cape Halawa	9.8	D	D	D
O	Kalaupapa	2.2	D	D	D
Q	Pauwela Pt.	9.8	3,476	63	55.2
CC	Ka'ena Pt.	12.0	6,294	111	56.7
DD	Opana Pt.	12.0	7,588	175	43.4
FF	Pukaulua Pt.	8.3	9,005	61	147.6
HO	Ho'olawa Pt.	12.0	18,996	200	95.0
JJ	Kamohio	9.0	24,698	119	207.5
LA	Lahaina	12.0	3,128	309	19.8
MC	Palaoa	6.0	3,244	57	56.9
NL	Nu'u	12.0	3,117	36	86.6
T2	Kolo Harbor	12.0			
T3	Pala'au	12.0			
T6	Palaoa	12.0			

FAD: Fish Aggregating Device - are non-navigational buoys placed several miles offshore to attract fish.

D: Due to low level of fishermen reporting and to preserve confidentiality, data for these FADs are not listed

¹ Reported numbers are for trolling only.

Source: State of Hawaii, Department of Land and natural Resources, Division of Aquatic Resources, *Commercial Marine Landings, State of Hawaii*, fiscal year report 2001