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## Section 22

# MANUFACTURES

This section presents statistics on the manufacturing segment of the economy, including sugar processing and pineapple canning. Additional information on manufacturing workers appears in Sections 12 and 15.

Sources for data on this subject include the *U.S. 2002 Economic Census*, the *U.S. Annual Survey of Manufactures*, publications of the Hawaii State Department of Agriculture and the Hawaii State Department of Taxation, and the *Hawaiian Sugar Manual* of the former Hawaiian Sugar Planters' Association, now the Hawaii Agriculture Research Center. *Historical Statistics of Hawaii*, Section 16, contains the figures for earlier years. Statistics for the nation as a whole appear in Section 21 of the *Statistical Abstract of the United States: 2007*.

**Table 22.01-- STATISTICAL SUMMARY OF MANUFACTURES  
(NAICS 31- 33): 2000 TO 2005**

[In millions of dollars unless otherwise noted. Industry groups with 950 employees or more; for 2002 data, with 100 employees or more. Statistics based on the North American Industry Classification System (NAICS)]

<b>Subject</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
All employees						
Number (1,000)	14.6	14.4	13.2	13.6	14.0	13.3
Payroll	428.0	447.4	421.3	434.4	1/ 518.5	481.0
Production workers						
Number (1,000) 2/	9.6	9.1	8.9	9.0	1/ 8.8	8.5
Hours (millions)	18.0	16.7	16.8	17.6	1/ 18.6	17.5
Wages	232.0	224.7	254.7	269.1	1/ 319.2	282.5
Value added by manufacture	1,357.2	907.3	1,217.7	1,224.5	1/ 1,477.8	1,809.1
Cost of materials 3/	2,444.1	2,268.6	2,246.5	2,641.9	1/ 3,092.7	4,716.2
Value of shipments 3/	3,732.3	3,196.4	3,460.2	3,879.7	1/ 4,519.0	6,406.9
Total capital expenditures	105.4	157.2	83.0	91.3	1/ 98.3	146.4

1/ Revised from previous *Data Book*.

2/ For years 2000 to 2004, average number of production workers for the payroll periods that include the 12th of March, May, August, and November, plus other employees for the payroll period that includes the 12th of March. For year 2005, average number of production workers for the payroll periods that include the 12th of March, June, September, and December, plus other employees for the payroll period that includes the 12th of March.

3/ Aggregate of total cost of materials and total value of shipments includes extensive duplication, since products of some industries are used as materials of others.

Source: U.S. Census Bureau, *Annual Survey of Manufactures, Geographic Area Statistics, 2001*, M01(AS)-3 (January 2003), table 2; *2003*, M03(AS)-3 (May 2005), table 2; *2004*, M04(AS)-3 (January 2006), table 2; *2005*, M05 (AS)-3 (November 2006), table 2 <<http://www.census.gov/mcd/asm-as3.html>> accessed April 2, 2007; U.S. Census Bureau, *2002 Economic Census, Manufacturing, Geographic Area Series, Hawaii*, EC02-31A-HI (RV) (September 2005), table 1 <<http://www.census.gov/prod/ec02/ec0231ahi.pdf>> accessed October 6, 2005.

**Table 22.02-- DETAILED MANUFACTURING STATISTICS  
(NAICS 31 - 33): 1997 and 2002**

[Statistics based on the North American Industry Classification System (NAICS) which replaced the Standard Industrial Classification (SIC) system used in Economic Censuses prior to the 1997 Economic Census]

Item	Value	
	1997	2002
Companies 1/	895	(NA)
All establishments 2/	921	929
1 to 19 employees	762	772
20 to 99 employees	130	135
100 employees or more	29	22
All employees 3/	15,109	13,200
Total compensation (\$1,000)	503,407	512,860
Annual payroll	405,045	421,269
Total fringe benefits	98,362	91,591
Production workers, average for year	9,899	8,865
On March 12	9,835	8,858
On May 12	9,768	8,830
On August 12	10,194	8,880
On November 12	9,799	8,859
Production-worker hours (1,000)	18,362	16,837
Production-worker wages (\$1,000)	231,595	254,713
Total cost of materials (\$1,000)	1,941,147	2,246,539
Materials, parts, containers, packaging, etc., used	1,673,002	1,904,259
Resales	152,624	246,016
Purchased fuels	51,118	41,001
Purchased electricity	23,281	21,969
Contract work	41,122	33,294
Quantity of electricity purchased for heat and power (1,000 kWh)	245,275	204,563
Quantity of electricity generated less sold for heat and power (1,000 kWh)	(4/)	356,114
Total value of shipments (\$1,000)	3,192,532	3,460,199
Value of resales	181,478	280,656
Value added (\$1,000)	1,262,448	1,217,728
Total inventories, beginning of year (\$1,000)	336,547	366,172
Finished goods	175,028	195,042
Work-in-process	46,214	74,346
Materials and supplies	115,305	96,784

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**Table 22.02-- DETAILED MANUFACTURING STATISTICS  
(NAICS 31 - 33): 1997 and 2002 -- Con.**

Item	Value	
	1997	2002
Total inventories, end of year (\$1,000)	351,344	370,990
Finished goods	188,052	237,652
Work-in-process	47,984	31,358
Materials and supplies	115,308	101,980
Gross value of depreciable assets (acquisition costs) at beginning of year (\$1,000)	1,221,564	1,386,417
Total capital expenditures (new and used)	100,707	82,960
Buildings and other structures	38,742	13,569
Machinery and equipment	61,965	69,391
Automobiles, trucks, etc., for highway use	(NA)	5,399
Computers and peripheral data processing equipment	(NA)	4,080
All other expenditures for machinery and equipment	(NA)	59,912
Total retirements	24,447	33,527
Gross value of depreciable assets at end of year (\$1,000)	1,297,824	1,435,850
Depreciation charges during year (\$1,000)	68,301	76,908
Total rental payments (\$1,000)	38,447	51,216
Buildings and other structures	23,072	36,161
Machinery and equipment	15,375	15,055

NA Not available.

1/ For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

2/ Includes establishments with payroll at any time during the year.

3/ Average number of production workers for pay period that includes the 12th of March, May,

4/ Withheld to avoid disclosing data for individual companies; data are included in higher level totals. August, and November plus other employees for payroll period that includes the 12th of March.

Source: U.S. Census Bureau, *1997 Economic Census, Manufacturing, Geographic Area Series, Hawaii*, EC97M31A-HI (May 2000), table 5; U.S. Census Bureau, *2002 Economic Census, Manufacturing, Geographic Area Series, Hawaii*, EC02-31A-HI (RV) (September 2005), table 5  
<<http://www.census.gov/prod/ec02/ec0231ahi.pdf>> accessed October 6, 2005.

**Table 22.03-- STATISTICAL SUMMARY OF MANUFACTURING  
(NAICS 31 - 33), BY COUNTY: 2002**

[For the State, industries with 100 employees or more; for the counties, industries with 500 employees or more. Statistics based on the North American Industry Classification System (NAICS) which replaced the Standard Industrial Classification (SIC) system used in Economic Censuses prior to the 1997 Economic Census]

<b>Subject</b>	<b>State total</b>	<b>City and County of Honolulu</b>	<b>Hawaii County</b>	<b>Kauai County 1/</b>	<b>Maui County</b>
All establishments 2/ With 20 employees or more	929 157	683 132	114 14	39 3	93 8
All employees					
Number	13,200	10,253	1,246	210	1,491
Payroll (\$1,000)	421,269	326,845	38,289	5,903	50,232
Production workers					
Number 3/	8,865	6,855	740	129	1,141
Hours (1,000)	16,837	12,920	1,466	247	2,204
Wages (\$1,000)	254,713	195,266	20,463	3,344	35,640
Value added by manufacture (\$1,000)	1,217,728	948,546	97,719	14,403	157,060
Cost of materials 4/ (\$1,000)	2,246,539	2,017,417	102,186	13,047	113,889
Value of shipments 4/ (\$1,000)	3,460,199	2,959,134	204,377	26,132	270,556
Total capital expenditures (\$1,000)	82,960	59,572	6,371	443	16,574

1/ Kauai data calculated as residual by the Hawaii State Department of Business, Economic Development & Tourism.

2/ Includes establishments with payroll at any time during the year.

3/ Average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

4/ Aggregate of cost of materials and value of shipments include extensive duplication since products of some industries are used as materials by others.

Source: U.S. Census Bureau, 2002 *Economic Census, Manufacturing, Geographic Area Series, Hawaii*, EC02-31A-HI (RV) (September 2005), tables 1 and 3 <<http://www.census.gov/prod/ec02/ec0231ahi.pdf>> accessed October 6, 2005. Calculations by the Hawaii State Department of Business, Economic Development & Tourism.

**Table 22.04-- MANUFACTURING, BY SELECTED INDUSTRY GROUPS  
(NAICS 31 - 33): 2004**

[Industry groups with 950 employees or more. Statistics based on the North American Industry Classification System (NAICS)]

<b>Subject</b>	<b>Total</b>	<b>Food NAICS 311</b>	<b>Food, bakeries &amp; tortilla NAICS 3118</b>	<b>Apparel NAICS 315</b>	<b>Apparel, cut &amp; sew NAICS 3152</b>	<b>Printing &amp; related support NAICS 323</b>	<b>Miscel- laneous NAICS 339</b>	<b>Other miscel- laneous NAICS 3399</b>
All employees								
Number 1/	13,967	4,773	1,605	1,463	1,457	1,569	1,364	1,113
Payroll (\$1,000)	518,491	193,384	39,823	27,977	27,821	51,311	42,363	33,647
Production workers								
Number 1/	8,831	3,253	1,069	934	931	875	639	458
Hours (1,000)	18,553	7,072	1,708	2,051	2,045	1,740	1,184	822
Wages (\$1,000)	319,168	137,366	24,549	14,733	14,655	28,768	15,302	9,247
Value added (\$1,000)	1,477,758	547,619	87,972	61,494	61,245	114,241	(2/)	(2/)
Total cost of materials 3/ (\$1,000)	3,092,737	504,589	76,199	31,747	31,526	63,265	(2/)	(2/)
Total value of shipments 3/ (\$1,000)	4,519,047	1,057,575	162,554	88,759	88,293	176,659	106,213	85,736
Total capital expenditures (\$1,000)	98,253	27,327	4,680	1,078	1,078	(2/)	4,733	4,422

1/ Average number of production workers for the March 12, June 12, September 12, and December 12 pay periods, plus other employees for the payroll period that includes the 12th of March.

2/ Withheld to avoid disclosing data of individual companies; data are included in higher level totals.

3/ Aggregate of total cost of materials and total value of shipments includes extensive duplication, since products of some industries are used as materials of others.

Source: U.S. Census Bureau, *Geographic Area Statistics: 2005, Annual Survey of Manufactures*, M05(AS)-3 (November 2006), table 2 <<http://www.census.gov/mcd/asm-as3.html>> accessed June 15, 2007.

**Table 22.05-- MANUFACTURING, BY SELECTED INDUSTRY GROUPS  
(NAICS 31 - 33): 2005**

[Industry groups with 950 employees or more. Statistics based on the North American Industry Classification System (NAICS)]

<b>Subject</b>	<b>Total</b>	<b>Food NAICS 311</b>	<b>Food, bakeries &amp; tortilla NAICS 3118</b>	<b>Apparel NAICS 315</b>	<b>Apparel, cut &amp; sew NAICS 3152</b>	<b>Printing &amp; related support NAICS 323</b>	<b>Miscel- laneous NAICS 339</b>	<b>Other miscel- laneous NAICS 3399</b>
All employees								
Number 1/	13,326	4,451	1,505	1,109	1,105	1,616	1,264	983
Payroll (\$1,000)	480,963	151,960	37,252	21,995	21,891	53,885	34,886	25,472
Production workers								
Number 1/	8,518	2,794	1,105	922	920	946	669	476
Hours (1,000)	17,528	6,065	1,838	1,708	1,704	1,886	1,216	855
Wages (\$1,000)	282,525	91,499	24,944	13,826	13,774	31,073	16,118	9,706
Value added (\$1,000)	1,809,052	554,749	95,580	(2/)	(2/)	108,800	60,573	45,161
Total cost of materials 3/ (\$1,000)	4,716,218	459,858	71,794	(2/)	(2/)	66,966	63,455	57,935
Total value of shipments 3/ (\$1,000)	6,406,885	1,007,638	165,344	82,888	82,506	174,612	117,809	96,999
Total capital expenditures (\$1,000)	146,371	32,051	8,518	(2/)	(2/)	22,039	6,247	5,576

1/ Average number of production workers for the March 12, June 12, September 12, and December 12 pay periods, plus other employees for the payroll period that includes the 12th of March.

2/ Withheld to avoid disclosing data of individual companies; data are included in higher level totals.

3/ Aggregate of total cost of materials and total value of shipments includes extensive duplication, since products of some industries are used as materials of others.

Source: U.S. Census Bureau, *Geographic Area Statistics: 2005, Annual Survey of Manufactures*, M05(AS)-3 (November 2006), table 2 <<http://www.census.gov/mcd/asm-as3.html>> accessed June 15, 2007.



**Table 22.06-- MANUFACTURING EMPLOYMENT AND WAGES,  
SELECTED NAICS CODES: 2005**

[Excludes establishments without payroll. Statistics based on the North American Industry Classification System (NAICS) which replaced the Standard Industrial Classification (SIC) system used in Economic Censuses prior to 1997]

NAICS code	Kind of business	Average establishments	Annual average employment	Total annual wages (\$1,000)	Annual wages per employee
	Total	1,081	15,220	515,425	33,866
311	Food	304	6,346	167,901	26,458
3113	Sugar & confectionery product	21	846	27,405	32,390
3114	Fruit & vegetable preserving & specialty	29	675	19,987	29,617
3115	Dairy product	11	353	15,602	44,166
3116	Animal slaughtering & processing	24	563	12,996	23,097
3118	Bakeries & tortilla	131	1,945	43,541	22,388
312	Beverage and tobacco product	29	684	28,771	42,089
3121	Beverage	29	684	28,771	42,089
314	Textile product mills	26	206	5,038	24,436
315	Apparel	91	937	16,951	18,083
321	Wood product	40	348	11,009	31,604
3212	Plywood & engineered wood product	8	184	5,948	32,355
3219	Other wood product	22	138	4,221	30,683
323	Printing & related support activities	130	1,232	40,128	32,582
325	Chemical	31	368	13,869	37,739
326	Plastics & rubber products	18	287	10,238	35,723
327	Nonmetallic mineral product	67	1,084	58,368	53,862
3271	Clay product & refractory	7	29	584	19,867
3272	Glass & glass product	10	49	1,421	29,003
3273	Cement & concrete product	33	827	49,772	60,159
3279	Other non-metallic mineral products	18	178	6,591	37,046
332	Fabricated metal product	44	492	21,413	43,500
333	Machinery	9	43	1,590	36,618
336	Transportation equipment	31	555	24,722	44,538
3366	Ship and boat building	18	504	22,500	44,606
337	Furniture & related product	60	568	21,394	37,648
339	Miscellaneous	164	1,229	37,041	30,133
3391	Medical equipment & supplies	47	296	11,085	37,397
3399	Other miscellaneous	117	933	25,955	27,824

Source: U.S. Bureau of Labor Statistics, *Employment and Wages, Annual Averages 2005*, table 10  
<<http://www.bls.gov/cew/cewbultn05.htm>> accessed May 1, 2007.

**Table 22.07-- GENERAL EXCISE TAX BASE FOR MANUFACTURING:  
1987 TO 2006**

[In thousands of dollars. Data exclude sugar processing, pineapple canning, and petroleum refining, and are on a cash basis accounting. Manufactured goods shipped out of State were exempted from the general excise tax by Act 239, SLH 1987, effective January 1, 1988. 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 income received in the 12-month period ending November 30]

Year	Tax base	Year	Tax base	Year	Tax base
1987	595,140	1994	618,238	2001	611,292
1988	629,303	1995	614,771	2002	612,658
1989	630,997	1996	622,889	2003	638,863
1990	728,387	1997	581,259	2004	642,245
1991	714,407	1998	535,371	2005 1/	699,877
1992	714,470	1999	585,305	2006	645,820
1993	717,423	2000	586,039		

1/ Revised from previous *Data Book* .

Source: Hawaii State Department of Taxation, "General Excise and Use Tax Collections" (annual). Beginning in 1997, <[http://www.state.hi.us/tax/a5\\_3txcolrptarchive.htm](http://www.state.hi.us/tax/a5_3txcolrptarchive.htm)>.

**Table 22.08-- INDUSTRIAL AND HIGH-TECHNOLOGY PARKS,  
BY ISLAND**

<b>Subject</b>	<b>State</b>	<b>Hawaii</b>	<b>Maui</b>	<b>Molokai</b>	<b>Oahu</b>	<b>Kauai</b>
Number of parks	22	5	3	1	12	1
Total acres	4,755.03	1,651.00	649.00	18.23	2,403.80	33.00

Source: Pacific Business News, *Book of Lists 2006 Edition* (December 23, 2005), p. 106.

**Table 22.09-- PINEAPPLE COMPANIES AND CANNERIES, AND  
SUGAR COMPANIES AND MILLS, 1955 TO 2006,  
AND BY ISLAND, 2005 AND 2006**

Year	Pineapple (end of canning season)		Sugar (December 31)	
	Companies	Canneries	Companies 1/	Mills
1955	10	8	28	26
1960	8	9	27	27
1965	6	6	25	27
1970	4	4	23	26
1975	3	3	16	17
1980	3	3	15	14
1985	3	2	14	12
1990	4	2	12	12
1994	3	1	9	10
1995	3	1	8	10
1996	3	1	4	6
1997	3	1	4	6
1998	3	1	4	6
1999	3	1	4	6
2000	3	1	3	4
2001	3	1	2	2
2002	3	1	2	2
2003	3	1	2	2
2004	3	1	2	2
2005	3	1	2	2
2006	3	1	2	2
ISLAND: 2005				
Hawaii	-	-	-	-
Maui	1	1	1	1
Oahu	2	-	-	-
Kauai	-	-	1	1
ISLAND: 2006				
Hawaii	-	-	-	-
Maui	1	1	1	1
Oahu	2	-	-	-
Kauai	-	-	1	1

1/ In operation; excludes cooperatives.

Source: Pineapple Growers Association of Hawaii, records; *Hawaiian Sugar Manual (annual)*; Dole Food Company, records; Hawaii Agriculture Research Center, records.

**Table 22.10-- SUGAR AND MOLASSES PRODUCTION: 1991 TO 2006**

Year	Cane land (acres)		Cane used for sugar (short tons)	Sugar produced (short tons)		Molasses produced (short tons)
	Total area	Harvested area 1/		96° raw value	Equivalent refined	
1991	155,609	67,716	5,852,668	724,100	676,744	202,214
1992	145,790	62,123	5,432,286	652,304	609,643	203,739
1993	121,322	64,705	5,506,072	677,405	633,103	211,658
1994	98,413	64,951	5,268,859	658,538	615,470	200,835
1995	81,957	48,507	3,952,347	492,346	460,147	163,305
1996	68,816	36,769	3,542,460	437,262	408,665	145,369
1997	67,820	32,033	2,923,594	356,917	333,575	131,173
1998	67,585	30,347	2,725,744	353,893	330,748	125,909
1999	60,758	35,329	2,891,499	367,532	343,495	141,481
2000	43,821	30,194	2,364,357	301,165	281,469	101,329
2001	50,410	19,293	1,876,613	246,203	230,101	85,894
2002	47,476	21,311	2,108,810	270,084	252,421	89,885
2003	47,733	19,851	2,029,761	261,009	243,939	89,631
2004	43,465	21,790	1,978,821	257,866	241,002	80,466
2005	40,145	21,735	1,754,581	252,342	235,839	72,675
2006	42,080	20,413	1,614,691	213,185	199,243	65,505

1/ The average growth of a crop is 22 to 26 months. Only a portion of the total acreage in cane is harvested each year.

Source: Hawaiian Sugar Planters' Association, *Hawaiian Sugar Manual* (annual), and records; Hawaii Agriculture Research Center, records.

**Table 22.11-- VALUE OF SALES FOR PINEAPPLE AND SUGAR PRODUCTION:  
1980 TO 2005**

[In millions of dollars]

Year	Pineapple		Sugar	
	Canned fruit and juices 1/	Fresh market sales 2/	Raw sugar 96°	Commercial molasses
1980	192.2	34.3	566.4	27.7
1981	172.0	45.6	314.2	13.7
1982	156.1	49.9	343.9	7.6
1983	171.6	47.4	396.5	13.7
1984	202.0	47.6	382.9	10.1
1985	171.7	50.8	331.9	8.9
1986	184.9	53.5	348.4	13.5
1987	202.9	48.5	325.0	10.9
1988	191.7	55.3	312.9	11.1
1989	182.7	59.2	313.6	8.4
1990	161.6	54.3	319.0	9.9
1991	172.7	51.9	261.0	9.7
1992	141.8	55.9	229.2	8.4
1993	86.6	54.0	242.9	9.0
1994	81.1	53.0	239.2	8.7
1995	72.5	62.5	190.5	9.7
1996	78.2	68.8	160.8	8.0
1997	73.0	63.7	127.5	5.0
1998	81.3	63.8	130.3	2.8
1999	72.3	72.5	129.5	1.8
2000	60.8	71.4	93.1	2.8
2001	67.7	68.9	86.4	4.2
2002	71.0	73.0	95.9	4.4
2003	64.4	78.5	95.9	3.1
2004	57.3	65.9	91.7	2.4
2005	49.8	63.6	87.9	4.5

1/ Value of canned fruit and juices and by-product shipped out-of-State and sold within State.

2/ Includes "fresh cut". Prior to 2005, value FAS shipping point for outshipments, delivered wholesalers local sales.

Source: Hawaii Agricultural Statistics Service, *Statistics of Hawaii Agriculture* (annual)  
<<http://www.nass.usda.gov/hi/stats/stat-pgs.htm>>; records.