

## 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.

The number of manufacturing establishments in Hawaii increased from 697 in 1967 to 966 in 1982. The value added by manufacture rose from \$326 million in 1967 to \$786 million in 1977 and \$1,195 million in 1985. More than three-fourths of all manufacturing activity in the State in 1982 was on Oahu. Food processing -- mostly sugar and pineapple -- accounted for 46 percent of the value added by manufacture in 1985. In 1986, the general excise and use tax base was \$336 million for sugar processing, \$33 million for pineapple canning, and \$569 million for all other manufacturing. There were two pineapple canneries and 12 sugar mills in Hawaii in 1986. The production of canned pineapple fruit and juices in 1981 (the most recent year available) was 18 million actual cases, well below the levels of earlier years. Sugar production in 1986 amounted to 1,042,000 short tons. The value of sugar production (including commercial molasses) was \$362 million, compared with the record of \$677 million set in 1974. Important manufactures other than food processing include apparel, printing and publishing, stone, clay, and glass products, and chemicals and allied products.

Sources for data on this subject include the United States Census of Manufactures, most recently conducted for 1982, the Annual Survey of Manufactures, publications of the Hawaii State Department of Agriculture and Department of Taxation, and the Hawaiian Sugar Planters' Association's annual report, HSPA Sugar Manual. Historical Statistics of Hawaii, Section 16, reviews the figures for earlier years. Statistics for the nation as a whole appear in Section 28 of the Statistical Abstract of the United States: 1987.

Table 654.-- STATISTICAL SUMMARY OF MANUFACTURES: 1963 TO 1982

Subject	1963	1967	1972	1977	1982
All establishments:					
Total .....	672	697	773	949	966
With 20 employees or more	203	215	238	231	237
All employees:					
Number (1,000) .....	25.1	25.4	24.8	25.0	23.6
Payroll (million dollars)	109.0	139.6	191.1	276.8	360.3
Production workers:					
Number (1,000) .....	18.7	19.0	17.7	17.4	16.0
Hours (millions) .....	33.2	35.9	33.1	31.3	29.9
Wages (million dollars) .	67.5	86.9	113.7	160.5	217.5
Value added by manu- facture 1/ (million dollars) .....	261.1	326.2	410.0	785.5	1,119.6
Cost of materials 2/ (million dollars) .....	(NA)	399.6	548.3	1,176.1	2,357.5
Value of shipments 2/ (million dollars) .....	(NA)	723.4	955.6	1,974.0	3,443.0
New capital expenditures (million dollars) .....	15.4	26.0	46.7	44.4	89.4

NA Not available.

1/ Data for 1982 not directly comparable to data for earlier years; see source for discussion.

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

Source: U.S. Bureau of the Census, 1985 Annual Survey of Manufactures, Geographic Area Statistics, M85(AS)-5 (March 1987), table 1, and 1977 Census of Manufactures, Hawaii, MC77-A-12 (October 1980), table 2a.

Table 655.-- STATISTICAL SUMMARY OF MANUFACTURES: 1982 TO 1985

[For intercensal data, 1971-1981, see Data Book 1983, table 564]

Subject	1982	1983	1984	1985
All establishments:				
Total .....	966	(NA)	(NA)	(NA)
With 20 employees or more	237	(NA)	(NA)	(NA)
All employees:				
Number (1,000) .....	23.6	22.6	22.5	23.0
Payroll (million dollars)	360.3	375.9	383.3	400.7
Production workers:				
Number (1,000) .....	16.0	14.9	15.6	15.8
Hours (millions) .....	29.9	29.0	29.3	28.0
Wages (million dollars) .	217.5	223.8	223.3	228.5
Value added by manu- facture (million dollars)	1,119.6	1,045.9	1,046.4	1,195.3
Cost of materials <sup>1/</sup> (million dollars) .....	2,357.5	2,382.2	2,330.4	2,280.2
Value of shipments <sup>1/</sup> (million dollars) .....	3,443.0	3,414.5	3,409.6	3,477.3
New capital expenditures (million dollars) .....	89.4	60.6	69.4	76.1

NA Not available.

<sup>1/</sup> Aggregate cost of materials and value of shipments include extensive duplication since products of some industries are used as materials by others.

Source: U.S. Bureau of the Census, 1985 Annual Survey of Manufactures, Geographic Area Statistics, M85(AS)-5 (March 1987), table 1.

Table 656.-- STATISTICAL SUMMARY OF MANUFACTURES, BY COUNTIES: 1982

Subject	State total	City and County of Honolulu	Hawaii County	Kauai County	Maui County
All establishments <u>1/</u> (number) ...	967	780	99	25	63
With 20 employees or more .....	237	200	18	7	12
All employees:					
Number (1,000) .....	23.6	17.9	2.4	0.7	2.6
Payroll (million dollars) .....	360.4	279.4	37.9	12.1	30.9
Production workers:					
Number (1,000) .....	16.0	11.9	1.9	0.5	1.7
Hours (millions) .....	29.9	21.6	3.9	1.0	3.4
Wages (million dollars) .....	217.5	158.3	29.0	8.3	21.8
Value added by manufacture (million dollars) .....	1,119.6	901.5	100.6	26.6	90.8
Cost of materials <u>2/</u> (million dollars) .....	2,357.5	2,078.5	130.1	58.3	90.7
Value of shipments <u>2/</u> (million dollars) .....	3,443.0	2,947.3	229.6	84.9	181.1
New capital expenditures (million dollars) .....	89.4	58.4	7.5	5.9	17.6

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

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

Source: U.S. Bureau of the Census, 1982 Census of Manufactures, Hawaii, MC82-A-12 (April 1985), table 4.

Table 657.-- MANUFACTURES, BY SELECTED INDUSTRY GROUP AND INDUSTRY: 1982

SIC code	Industry group and industry	Number of establishments	Number of employees (1,000)	Payroll (million dollars)	Value added by manufacture (million dollars)	Value of shipments (million dollars)
	All industries .....	967	23.6	360.4	1,119.6	3,443.0
20	Food and kindred products ...	221	11.1	161.2	398.6	1,079.5
202	Dairy products .....	10	.5	10.4	20.3	68.8
203	Preserved fruits and vegetables .....	34	3.3	36.1	96.7	234.0
2033	Canned fruits and vegetables .....	9	3.1	33.6	89.3	214.5
205	Bakery products .....	33	1.2	18.9	41.6	70.7
206	Sugar and confectionery products .....	29	3.6	61.6	159.7	428.1
2061	Raw cane sugar .....	13	2.9	52.9	136.1	350.3
208	Beverages .....	12	.5	8.6	26.9	72.3
23	Apparel and other textile products .....	145	3.4	31.1	56.5	106.6
232	Men's and boy's furnishings .....	22	.8	7.5	13.1	22.9
233	Women's and misses' outerwear .....	78	1.7	15.7	26.3	44.6
2335	Women's and misses' dresses .....	62	1.4	12.8	21.1	37.3
27	Printing and publishing .....	177	2.5	(D)	(D)	(D)
275	Commercial printing .....	93	.9	14.3	27.0	44.5
28	Chemicals and allied products	21	.3	6.3	24.8	64.4
32	Stone, clay, and glass products .....	53	.9	19.2	38.9	80.0
327	Concrete, gypsum, and plaster products .....	29	.7	16.0	30.4	64.1
34	Fabricated metal products ...	42	.7	11.8	22.9	76.4

D Withheld to avoid disclosing data for individual companies; data are included in higher level totals.

Source: U.S. Bureau of the Census, 1982 Census of Manufactures, Hawaii, MC82-A-12 (April 1985), table 5.

Table 658.-- MANUFACTURES, BY SELECTED INDUSTRY GROUP: 1985

[Includes operating manufacturing establishments and auxiliaries. Includes major groups with 150 employees or more]

SIC code	Major group	All employees		Production workers		
		Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)
	All groups .....	23.0	400.7	15.8	28.0	228.5
20	Food and kindred products .....	9.8	177.6	7.0	13.0	106.1
23	Apparel and other textile products .....	4.1	37.5	3.3	5.9	26.6
24	Lumber and wood products .....	.4	5.7	.3	.5	4.1
25	Furniture and fixtures .....	.4	4.6	.3	.6	3.3
26	Paper and allied products .....	.3	5.9	.2	.4	3.6
27	Printing and publishing .....	(D)	(D)	(D)	(D)	(D)
28	Chemicals and allied products .....	.4	8.1	.2	.3	3.6
29	Petroleum and coal products .....	(D)	(D)	(D)	(D)	(D)
30	Rubber and miscellaneous plastics products ....	(S)	(S)	(S)	(S)	(S)
32	Stone, clay, and glass products .....	.8	16.4	.6	1.1	11.3
34	Fabricated metal products .....	.8	13.5	.6	.8	10.5
35	Machinery, except electrical .....	.3	4.7	.2	.4	3.0
37	Transportation equipment .....	.3	6.1	.2	.3	4.4
39	Miscellaneous manufacturing industries .....	.6	6.5	.4	.7	3.7
--	Auxiliaries .....	.7	23.0	-	-	-

Continued on next page.

Table 658.-- MANUFACTURES, BY SELECTED INDUSTRY GROUP: 1985 - Con.

[Includes operating manufacturing establishments and auxiliaries. Includes major groups with 150 employees or more]

SIC code	Major group	Value added by manufacture (million dollars)	Cost of materials <sup>1/</sup> (million dollars)	Value of shipments <sup>1/</sup> (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
	All groups .....	1,195.3	2,280.2	3,477.3	76.1	341.2
20	Food and kindred products .....	551.3	734.7	1,276.6	38.5	125.7
23	Apparel and other textile products .....	82.5	62.4	148.1	2.7	23.2
24	Lumber and wood products .....	11.5	14.9	26.8	.1	5.0
25	Furniture and fixtures .....	2.0	5.9	8.1	(D)	2.9
26	Paper and allied products .....	16.9	23.7	40.7	1.0	3.8
27	Printing and publishing .....	(D)	(D)	(D)	(D)	(D)
28	Chemicals and allied products .....	1.2	45.4	51.8	(D)	14.4
29	Petroleum and coal products .....	(D)	(D)	(D)	(D)	(D)
30	Rubber and miscellaneous plastics products ....	(S)	(S)	(S)	(D)	(S)
32	Stone, clay, and glass products .....	35.1	51.7	86.9	1.7	13.9
34	Fabricated metal products .....	22.4	67.0	91.0	(D)	18.7
35	Machinery, except electrical .....	7.5	4.1	12.2	.1	2.0
37	Transportation equipment .....	2.7	10.9	13.7	(D)	1.5
39	Miscellaneous manufacturing industries .....	14.6	14.9	28.4	.1	9.5
--	Auxiliaries .....	-	-	-	-	-

D Withheld to avoid disclosing data for individual companies.

S Withheld because estimate did not meet publication standards.

<sup>1/</sup> Aggregate of cost of materials and value of shipments includes extensive duplication since products of some industries are used as materials by others.

Source: U.S. Bureau of the Census, 1985 Annual Survey of Manufactures, Geographic Area Statistics, M85(AS)-5 (March 1987), table 2.

Table 659.-- PLANT CAPACITY UTILIZATION RATES: FOURTH QUARTERS,  
1981 TO 1985

[Data based on limited samples and subject to high sampling variability. Comparability of 1984 rates with earlier figures is further affected by the use of a new survey sample in that year. Considerable caution is thus urged in making any year-to-year comparisons, and particularly between 1983 and 1984]

Type of rate	Fourth quarter estimates				
	1981	1982	1983	1984	1985
Preferred rate $\frac{1}{}$ .....	80	80	83	84	87
Practical rate $\frac{2}{}$ .....	73	72	73	81	83

1/ The preferred level of operations is defined as a level, normally between actual operations and practical capacity, which the manufacturer would prefer not to exceed due to costs or other considerations. In this table, the preferred utilization rate represents the ratio of actual to preferred level of operations.

2/ Practical capacity is broadly defined as the greatest output the plant could achieve within the framework of a realistic work pattern. The practical capacity utilization rate is the ratio of actual operations to the practical capacity level.

Source: U.S. Bureau of the Census, "Survey of Plant Capacity, 1982," Current Industrial Reports, MQ-C19(82)-1, November 1983, p. 19, and unpublished estimates for 1983-1985.

Table 660.-- INDUSTRIAL PARKS AND AREAS, BY ISLANDS: 1985

Subject	State total	Hawaii	Maui	Oahu	Kauai	Other islands
Number:						
Developed .....	33	6	4	21	2	-
Proposed .....	12	2	2	7	1	-
Acres:						
Developed .....	3,066	618	195	2,207	46	-
Proposed .....	1,873	1,035	330	492	16	-

Source: Hawaii State Department of Planning and Economic Development, Industrial Parks and Areas in Hawaii 1985 (1985).



Table 661.-- GENERAL EXCISE TAX BASE FOR SUGAR PROCESSING,  
PINEAPPLE CANNING, AND MANUFACTURING: 1976 TO 1986

[In thousands of dollars. Data are on a cash basis accounting and may be distorted by cutoffs, out-of-period adjustments (assessments and error corrections), taxpayer reporting in wrong categories, and computer problems]

Year reported <u>1/</u>	Total	Sugar processing	Pineapple canning <u>2/</u>	Manufacturing <u>3/</u>
1976 .....	783,751	275,078	95,488	413,186
1977 <u>4/</u> ...	862,412	284,000	111,942	466,470
1978 <u>4/</u> ...	917,163	291,000	131,665	494,498
1979 .....	1,035,159	305,738	164,200	565,221
1980 .....	1,349,149	527,379	195,766	626,004
1981 .....	1,218,516	415,442	172,342	630,732
1982 .....	1,033,845	317,880	185,367	530,598
1983 .....	1,130,369	435,579	182,967	511,823
1984 .....	1,132,078	414,211	198,266	519,601
1985 .....	1,000,578	357,151	115,754	527,673
1986 .....	937,840	336,334	32,974	568,532

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

2/ Decline after 1984 reflects in part the exemption of exported pineapple produced by two companies from the general excise tax, effective August 1, 1985 and April 30, 1986, when they were granted foreign trade subzone status.

3/ Excludes sugar processing, pineapple canning, and petroleum refining.

4/ Partly estimated.

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

Table 662.-- PINEAPPLE COMPANIES AND CANNERIES AND  
SUGAR COMPANIES AND MILLS: 1940 TO 1986

Year	Pineapple (end of canning season)		Sugar (December 31)	
	Companies <u>1/</u>	Canneries	Companies <u>2/</u>	Mills
1940 .....	8	8	38	34
1945 .....	7	7	36	32
1950 .....	9	8	28	26
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
1986 .....	3	2	14	12
ISLANDS: 1986				
Hawaii .....	-	-	4	4
Maui .....	1	1	3	2
Oahu .....	2	1	2	2
Kauai .....	-	-	5	4

1/ Data include Del Monte, which now sells only fresh pineapple.

2/ Excludes cooperatives.

Source: Pineapple Growers Association of Hawaii, records; Hawaiian Sugar Planters' Association, records.

Table 663.-- EMPLOYMENT IN THE PINEAPPLE AND SUGAR INDUSTRIES: ANNUAL AVERAGES, 1985 AND 1986

Year	Pineapple			Sugar		
	Total	Field	Cannery	Total	Field	Mill
1985 .....	3,850	1,950	1,900	7,550	4,100	3,450
1986 .....	4,050	2,050	2,000	7,300	4,000	3,300

Source: Hawaii State Department of Labor and Industrial Relations, Labor Force Data Book, as revised April 1987.

Table 664.-- HAWAIIAN PINEAPPLE PRODUCTION: 1977-1978 TO 1981

[In thousands. Pack year ended May 31 through 1978-1979 and calendar years 1979, 1980, and 1981. Hawaiian pack only; excludes overseas production by Hawaiian companies. Compilation of these statistics was suspended after 1981]

Year	Canned fruit		Canned juice		Frozen concentrate	
	Actual cases	Standard cases <u>1/</u>	Actual cases	Standard cases <u>2/</u>	Equivalent 6/10 cases	Standard cases <u>2/</u>
1977-1978 ..	12,482	8,490	8,403	5,750	294	270
1978-1979 ..	11,142	7,620	7,386	5,760	290	265
1979 .....	10,930	7,470	7,699	6,010	308	280
1980 .....	9,918	6,940	8,114	6,410	237	215
1981 .....	9,759	6,830	7,997	6,320	219	200

1/ 24 No. 2 1/2 can, 45-lb. cases.

2/ 24 No. 2 1/2 can, 42 1/2-lb. cases.

Source: The Pineapple Growers Association of Hawaii, records; Hawaii Agricultural Reporting Service, Statistics of Hawaiian Agriculture (annual).

Table 665.-- SUGAR AND MOLASSES PRODUCTION: 1967 TO 1986

Year	Cane land (acres)		Cane used for sugar (short tons)	Sugar produced (short tons)		Molasses produced (short tons)
	Total area	Harvested area <u>1/</u>		96° raw value	Equivalent refined	
1967 ...	239,813	111,837	11,045,949	1,191,042	1,113,148	359,170
1968 ...	242,476	113,525	11,279,920	1,232,182	1,151,597	368,050
1969 ...	242,216	113,232	10,839,272	1,182,414	1,105,060	340,330
1970 ...	238,997	113,816	10,457,377	1,162,071	1,086,000	322,480
1971 ...	232,278	115,810	10,685,019	1,229,976	1,149,510	330,227
1972 ...	229,611	108,456	9,929,068	1,118,883	1,045,708	307,543
1973 ...	226,580	108,189	9,645,452	1,128,529	1,054,723	301,500
1974 ...	224,227	95,826	9,082,684	1,040,742	972,677	293,380
1975 ...	221,426	105,125	9,485,299	1,107,199	1,034,788	301,335
1976 ...	221,551	99,926	9,172,649	1,050,457	981,757	275,352
1977 ...	220,729	96,770	8,994,388	1,033,739	966,132	284,349
1978 ...	220,697	99,355	9,263,190	1,028,933	961,641	310,238
1979 ...	218,773	100,610	9,632,135	1,059,737	990,430	325,843
1980 ...	217,718	97,358	9,214,136	1,023,232	956,313	315,088
1981 ...	216,099	97,573	8,831,477	1,047,541	979,032	311,719
1982 ...	204,749	89,261	8,807,998	982,913	918,630	287,190
1983 ...	194,258	92,808	8,926,358	1,044,204	975,913	303,254
1984 ...	188,396	89,541	8,453,721	1,061,814	992,371	314,202
1985 ...	187,858	83,029	7,916,459	1,012,249	946,048	271,645
1986 ...	184,181	83,583	8,379,463	1,042,452	974,276	290,422

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, HSPA Sugar Manual (annual).

Table 666.-- AVERAGE RAW SUGAR PRICE AND SUGAR INDUSTRY EMPLOYMENT AND EARNINGS: 1967 TO 1986

Year	Average raw sugar price <sup>1/</sup> (cents per lb.)	Hourly-rated employees		Industry-wide strikes (weeks)	Average daily earnings <sup>2/</sup> (dollars)	
		Average number <sup>3/</sup>	Total man-days		Cash wages	Employee benefits
1967 ...	7.28	9,756	2,346,197	-	21.35	7.50
1968 ...	7.52	9,481	2,282,654	-	21.62	8.40
1969 ...	7.75	9,213	2,066,244	5	23.26	9.76
1970 ...	8.08	8,908	2,139,183	-	24.24	10.00
1971 ...	8.52	8,610	2,077,011	-	26.08	10.27
1972 ...	9.10	8,127	1,934,563	-	29.09	11.23
1973 ...	10.30	7,900	1,897,369	-	30.86	12.48
1974 ...	29.43	7,700	1,744,346	6	34.41	15.81
1975 ...	22.49	7,800	1,937,973	-	37.34	15.66
1976 ...	13.31	7,500	1,854,272	-	43.12	17.28
1977 ...	11.11	7,200	1,660,298	3	43.92	19.97
1978 ...	13.74	7,200	1,771,530	-	47.06	21.28
1979 ...	15.20	7,065	1,762,838	-	50.49	22.21
1980 ...	30.18	7,076	1,793,237	-	56.72	24.68
1981 ...	19.74	7,282	1,806,020	-	61.51	27.71
1982 ...	19.94	6,816	1,519,732	-	65.11	30.83
1983 ...	22.04	6,543	1,565,928	-	66.80	32.00
1984 ...	21.74	6,319	1,467,127	-	68.88	34.71
1985 ...	20.39	5,751	1,323,525	-	68.72	35.99
1986 ...	20.90	5,413	1,290,067	-	69.28	34.24

<sup>1/</sup> Average New York raw sugar price computed over all the days of the year (Hawaiian basis). The New York spot price was suspended from November 2, 1977 to August 20, 1979; figures for that period are based on Clearing Association settlement prices. New York spot price "nearby futures" used beginning June 1985.

<sup>2/</sup> For non-supervisory employees.

<sup>3/</sup> Adults only.

Source: Hawaiian Sugar Planters' Association, HSPA Sugar Manual (annual), as revised and updated.

Table 667.-- VALUE OF SALES AND GOVERNMENT PAYMENTS FOR PINEAPPLE  
AND SUGAR PRODUCTION: 1970 TO 1986

[In millions of dollars. Calendar year data unless otherwise  
specified]

Year	Pineapple		Sugar		
	Canned fruit and juices <u>1/</u>	Fresh market sales <u>2/</u>	Value of production		Government sugar support payments
			Raw sugar 96 <sup>o</sup>	Commercial molasses	
1970 ..	135.0	3.60	180.7	7.1	10.3
1971 ..	137.7	3.70	196.3	6.7	10.7
1972 ..	140.5	4.90	176.6	8.1	9.7
1973 ..	135.0	7.40	203.8	18.4	9.5
1974 ..	118.2	8.85	659.2	17.4	8.6
1975 ..	126.6	10.08	354.6	11.5	-
1976 ..	130.0	14.49	245.5	11.5	-
1977 ..	140.0	21.58	219.1	7.7	48.7
1978 ..	133.4	29.45	269.5	15.7	8.1
1979 ..	176.3	30.08	322.2	23.5	-
1980 ..	192.2	34.34	566.4	27.7	-
1981 ..	172.0	45.63	314.2	13.7	-
1982 ..	156.1	49.92	343.9	7.6	-
1983 ..	171.6	47.40	396.5	13.7	-
1984 ..	202.0	47.60	382.9	10.1	-
1985 ..	171.7	50.84	331.9	8.9	-
1986 ..	188.5	53.46	348.4	13.5	-

1/ Value of canned fruit and juices and by products shipped out-of-State and sold within State. Prior to 1979, data are for pack years beginning June 1.

2/ Value FAS shipping point for outshipments, delivered wholesalers local sales.

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