

## 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 1,020 in 1987. The value added by manufacture rose from \$326 million in 1967 to \$786 million in 1977, \$1.41 billion in 1987, and \$1.56 billion in 1990. More than three-fourths of all manufacturing activity in the State in 1987 was on Oahu. Food processing--mostly sugar and pineapple--accounted for 36 percent of the value added by manufacture in 1990. In 1993, the general excise and use tax base for diversified manufacturing (that is, manufacturing exclusive of sugar processing, pineapple canning, and petroleum refining) was \$717 million. There were one pineapple cannery and 11 sugar mills in Hawaii in 1993. Canned and fresh pineapple sales in 1992 totaled \$198 million. Sugar production in 1992 amounted to 652,000 short tons, the lowest total in 46 years. The value of sugar production (including commercial molasses) in 1992 was \$238 million, compared with the record of \$677 million set in 1974. Important manufactures other than food processing include apparel, printing and publishing, and stone, clay, and glass products. Industrial and technology parks and areas in 1990 numbered 40, with 7,591 acres.

Sources for data on this subject include the quinquennial United States Census of Manufactures, most recently published for 1987, 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, contains the figures for earlier years. Statistics for the nation as a whole appear in Section 27 of the *Statistical Abstract of the United States: 1993*.

**Table 22.1-- STATISTICAL SUMMARY OF MANUFACTURES:  
1963 TO 1991**

Subject	1963	1967	1972	1977	1982
All establishments: <u>1/</u>					
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 manufacture <u>2/</u> (million dollars).....	261.1	326.2	410.0	785.5	1,119.6
Cost of materials <u>3/</u> (million dollars).....	(NA)	399.6	548.3	1,176.1	2,357.5
Value of shipments <u>3/</u> (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

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**Table 22.1-- STATISTICAL SUMMARY OF MANUFACTURES:  
1963 TO 1991 -- Con.**

Subject	1987	1988	1989	1990	1991
All establishments: <u>1/</u>					
Total .....	1,022	(NA)	(NA)	(NA)	(NA)
With 20 employees or more .....	225	(NA)	(NA)	(NA)	(NA)
All employees:					
Number (1,000) .....	22.2	21.7	20.5	20.7	19.3
Payroll (million dollars) .....	440.2	452.4	432.6	476.7	466.1
Production workers:					
Number (1,000) .....	15.2	14.3	13.0	13.2	11.5
Hours (millions) .....	28.8	27.4	25.2	26.1	22.9
Wages (million dollars) .....	254.2	255.0	244.2	263.1	248.6
Value added by manufacture <u>2/</u> (million dollars) .....	1,405.3	1,376.8	1,609.8	1,557.5	1,383.3
Cost of materials <u>3/</u> (million dollars) .....	2,048.8	1,980.1	2,220.7	2,680.5	2,368.8
Value of shipments <u>3/</u> (million dollars) .....	3,447.9	3,337.3	3,813.4	4,202.9	3,805.3
New capital expenditures (million dollars) .....	102.0	76.1	98.4	126.9	64.1

NA Not available.

1/ Establishments with payroll at any time during year.

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

3/ 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, *1982 Census of Manufactures, Geographic Area Series, Hawaii*, MC82-A-12 (April 1985), table 2a; *1987 Census of Manufactures, Geographic Area Series, Hawaii*, MC87-A-12 (October 1990), table 2a; *1989 Annual Survey of Manufactures, Geographic Area Statistics*, M89 (AS)-3 (September 1991), table 1; *1990 Annual Survey of Manufactures, Geographic Area Statistics*, M90 (AS)-3 (April 1992), table 1; *1991 Annual Survey of Manufactures, Geographic Area Statistics*, M91(AS)-3 (February 1993), table 1.

**Table 22.2- STATISTICAL SUMMARY OF MANUFACTURES, BY COUNTIES: 1987**

Subject	State total	City and County of Honolulu	Hawaii County	Kauai County	Maui County
All establishments <u>1/</u> (number) .....	1,022	800	100	34	88
With 20 employees or more.....	225	182	21	6	16
All employees:					
Number (1,000) .....	22.2	16.5	2.2	0.7	2.8
Payroll (million dollars).....	440.2	330.7	40.7	13.8	54.9
Production workers:					
Number (1,000) .....	15.2	10.9	1.6	0.5	2.2
Hours (millions).....	28.8	19.9	3.2	1.1	4.6
Wages (million dollars) .....	254.2	178.2	27.5	9.5	39.0
Value added by manufacture (million dollars).....	1,405.3	1,077.1	117.4	51.8	159.0
Cost of materials <u>2/</u> (million dollars).....	2,048.8	1,716.6	129.6	47.7	154.9
Value of shipments <u>2/</u> (million dollars).....	3,447.9	2,783.8	250.5	99.5	314.2
New capital expenditures (million dollars).....	102.0	66.1	11.6	5.9	18.5

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

2/ 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. Bureau of the Census, *1987 Census of Manufactures, Geographic Area Series, Hawaii, MC87-A-12* (October 1990), table 4.

**Table 22.3-- MANUFACTURES, BY SELECTED INDUSTRY GROUP: 1991**

[Includes operating manufacturing establishments and auxiliaries]

Subject	All manu- factures	Food and kindred products (SIC 20)		Men's and boys' furnishings (SIC 232)	Commercial printing (SIC 275)	Stone, clay, and glass products (SIC 32)
		Total	Sugar and confect. prod. (SIC 206)			
All employees:						
Number (1,000) .....	19.3	8.4	3.2	1.0	1.3	1.2
Payroll (mil. dol.).....	466.1	183.0	71.1	12.1	32.4	44.5
Production workers:						
Number (1,000) .....	11.5	5.8	2.4	0.8	0.8	0.9
Hours (millions) .....	22.9	11.8	4.8	1.5	1.9	1.9
Wages (mil. dol.) .....	248.6	109.8	48.8	8.4	20.3	32.6
Value added by manufacture (mil. dol.).....	1,383.3	567.2	243.1	19.9	53.3	97.5
Cost of materials (mil. dol.).....	2,368.8	725.6	252.0	19.9	41.7	141.9
Value of shipments (mil. dol.).....	3,805.3	1,293.5	493.7	39.8	94.6	240.2
New capital expenditures (mil. dol.).....	64.1	27.1	12.7	(D)	1.7	5.5
End-of-year inventories (mil. dol.).....	358.5	178.0	88.2	8.4	5.3	27.5

D Withheld to avoid disclosing data.

Source: U.S. Bureau of the Census, *1991 Annual Survey of Manufactures, Geographic Area Statistics*, M91(AS)-3 (February 1993), table 2.

**Table 22.4-- MANUFACTURING SALES RECEIPTS: 1989 TO 1992**

[Millions of dollars]

Category	1989	1990	1991	1992
Total manufacturing ....	2,259.0	2,615.1	2,402.6	2,263.0
Sugar processing .....	342.1	353.3	302.0	280.5
Pineapple canning .....	182.7	161.6	172.7	141.8
Petroleum .....	1,076.4	1,345.9	1,214.8	1,144.4
Diversified manufacturing .....	657.9	754.4	713.2	696.4

Source: Bank of Hawaii, *Hawaii 1993, Annual Economic Report*, p. 39.

**Table 22.5-- INDUSTRIAL AND TECHNOLOGY PARKS AND AREAS, BY ISLANDS: 1990**

[Includes existing industrial areas, industrial parks and subdivisions, and technology parks and centers]

Subject	State total	Hawaii	Maui	Oahu	Kauai
Number of parks and areas .....	40	10	5	22	3
Acres .....	7,591	2,066	626	4,847	52

Source: Hawaii State Department of Business, Economic Development & Tourism, *State of Hawaii Directory of Industrial and Technology Parks 1991* (1990).

**Table 22.6-- PINEAPPLE COMPANIES AND CANNERIES AND SUGAR COMPANIES AND MILLS: 1940 TO 1993**

Year	Pineapple (end of canning season)		Sugar (December 31)	
	Companies	Canneries	Companies <u>1/</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
1990 .....	4	2	12	12
1992 .....	3	2	12	12
1993 .....	3	1	11	11
ISLANDS: 1993				
Hawaii.....	-	-	2	2
Maui.....	1	1	2	3
Oahu.....	2	-	2	2
Kauai.....	-	-	5	4

1/ In operation; excludes cooperatives.

Source: Pineapple Growers Association of Hawaii, records; Hawaiian Sugar Planters' Association, *Hawaiian Sugar Manual* (annual); Hawaii State Department of Agriculture, records; Dole Food Company, records.

**Table 22.7-- SUGAR AND MOLASSES PRODUCTION: 1972 TO 1992**

Year	Cane land (acres)		Cane used for sugar (short tons)	Sugar produced (short tons)		Molasses produced (short tons)
	Total area	Harvested area <sup>1/</sup>		96° raw value	Equivalent refined	
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
1987 .....	180,966	79,498	8,012,899	979,209	915,169	283,250
1988 .....	177,693	78,715	7,602,414	928,195	867,491	274,375
1989 .....	170,813	74,660	7,078,479	863,614	817,752	229,377
1990 .....	161,991	71,999	6,540,925	819,631	776,027	220,859
1991 .....	155,609	67,716	5,852,668	724,100	684,619	202,214
1992 .....	145,790	62,123	5,432,286	652,304	609,643	196,991

<sup>1/</sup> 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), and records.

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**Table 22.8-- AVERAGE RAW SUGAR PRICE AND SUGAR INDUSTRY  
EMPLOYMENT AND EARNINGS: 1972 TO 1992**

Year	Average raw sugar price <sup>1/</sup> (cents per lb.)	Hourly-rated employees		Average daily earnings <sup>2/</sup> (dollars)	
		Average number <sup>3/</sup>	Total man- days	Cash wages	Employee benefits
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	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	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
1987 .....	21.83	5,222	1,261,209	71.36	41.83
1988 .....	22.12	5,110	1,204,708	72.46	34.56
1989 .....	22.76	4,721	1,129,526	74.64	41.92
1990 .....	23.26	4,453	1,065,794	76.42	43.07
1991 .....	21.57	4,263	1,024,534	80.26	44.02
1992 .....	21.30	4,101	1,003,876	84.11	46.00

<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 22.9-- VALUE OF SALES AND GOVERNMENT PAYMENTS FOR PINEAPPLE AND SUGAR PRODUCTION: 1970 TO 1992**

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

Year	Pineapple		Sugar		
	Canned fruit and juices <sup>1/</sup>	Fresh market sales <sup>2/</sup>	Value of production		Government sugar support payments
			Raw sugar <sup>96°</sup>	Commercial molasses	
1970 .....	135.0	3.6	180.7	7.1	10.3
1971 .....	137.7	3.7	196.3	6.7	10.7
1972 .....	140.5	4.9	176.6	8.1	9.7
1973 .....	135.0	7.4	203.8	18.4	9.5
1974 .....	118.2	8.9	659.2	17.4	8.6
1975 .....	126.6	10.1	354.6	11.5	-
1976 .....	130.0	14.5	245.5	11.5	-
1977 .....	140.0	21.6	219.1	7.7	48.7
1978 .....	133.4	29.5	269.5	15.7	8.1
1979 .....	176.3	30.1	322.2	23.5	-
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	-

<sup>1/</sup> Processor value of canned fruit and juice production and by-products shipped out-of-State and sold within State. Prior to 1979, data are for pack years beginning June 1.

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

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