

Papaya Statistics

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The Hawaii Agricultural Statistics Service (HASS) is responsible for the collection and dissemination of statistical data for the state's papaya crop. In that regard, HASS publishes a monthly report as well as comprehensive annual statistics. The monthly release concentrates on utilization, acreage, and preliminary prices. The annual statistics include the average number of farms, harvested acreage, and utilization, price, and value of production. Additionally, monthly historical data are also displayed (see Appendix Tables 1-3 and Figure 1). I will go over the annual statistics for 1992 before moving on to other aspects of HASS's papaya estimating program.

Annual Statistics

Appendix Tables 4 and 5 will appear in the annual *Statistics of Hawaiian Agriculture, 1992*, which will go to print before the end of September, 1993. We have crammed just about all we can into these tables, so it takes a while to digest it all.

In Appendix Table 4 the really important figures are in the top portion, particularly the utilized production, price, and value. Despite the good production year, a reduction of 8.3¢ per pound in the fresh price was more than enough to offset a 29 percent increase in production, thus limiting the value of production. Utilized production totaled 71.3 million pounds, about in line with most years in the five-year period. However, the telling figure is the large amount processed papaya (15.5 million lb and highest on record), more than double the 1991 total, and that amount brought only 3¢ per lb to growers and is the main reason that the value of production wasn't higher. Appendix Table 5 contains monthly acreage, utilization, and price statistics for the five-year period. Annual acreage is an average of the 12 months.

Figure 2 shows the total fresh utilization for the past five years. The highest fresh utilization for the period was in 1989 when 64 million pounds of fresh papayas were sold. Prices were lower than a year earlier: 25¢ for fresh utilization compared with 33¢ for 1991. The bottom line is that the crop is valued at \$14.4 million, down 11 percent.

Distribution

As everyone knows, the overwhelming majority of papayas are grown on the Big Island, but that doesn't mean the rest of the islands aren't making waves.

Table 1. Papaya utilized production, by island, 1988-92.

Year	1988	1989	1990	1991	1992
	Percent				
Hawaii	96.2	97.4	97.9	97.0	96.0
Kauai	2.0	1.3	1.2	1.3	1.6
Maui/Molokai	0.1	0.2	0.3	0.4	0.3
Oahu	1.7	1.1	0.6	1.4	2.1
State	100.0	100.0	100.0	100.0	100.0

Kauai

You may have heard the old saying that there are lies, damn lies, and statistics. You may also have heard of the book *How to Lie With Statistics*. This is a good example. Kauai experienced a 63 percent increase in their 1992 production, and still lost their entire crop to Hurricane Iniki. For the record, acreage was up some, but yields averaged 8,200 pounds per acre more than a year earlier. Lower prices kept the value down.

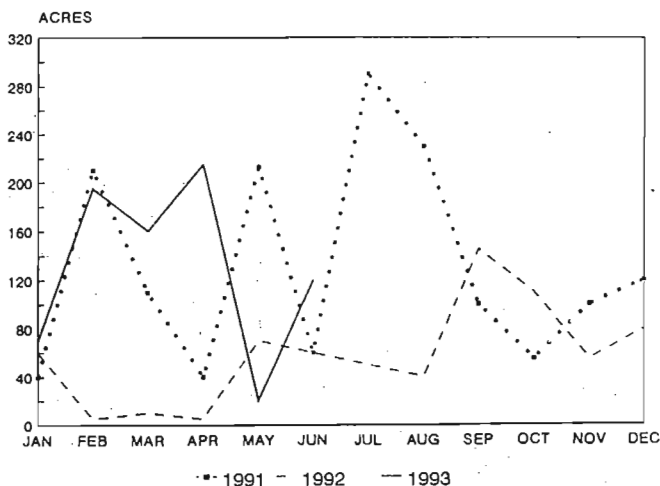
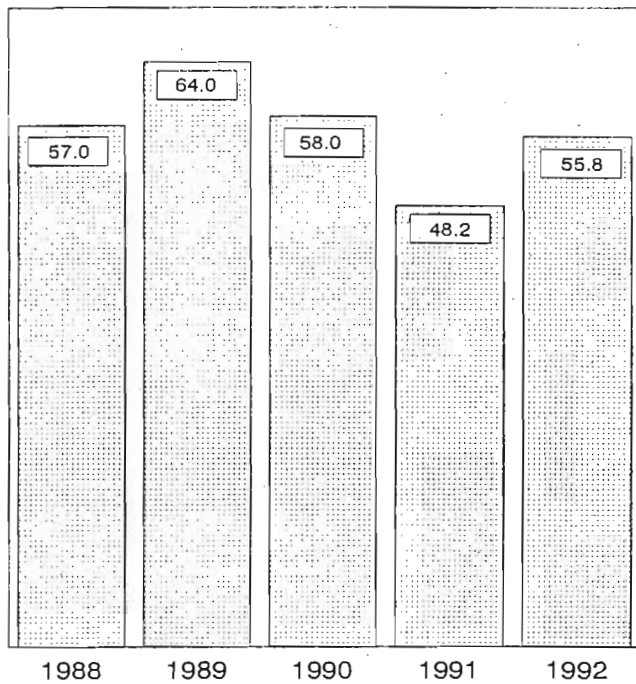


Figure 1. State papaya acreage planted, 1991-1993.

MILLION POUNDS



MILLION POUNDS

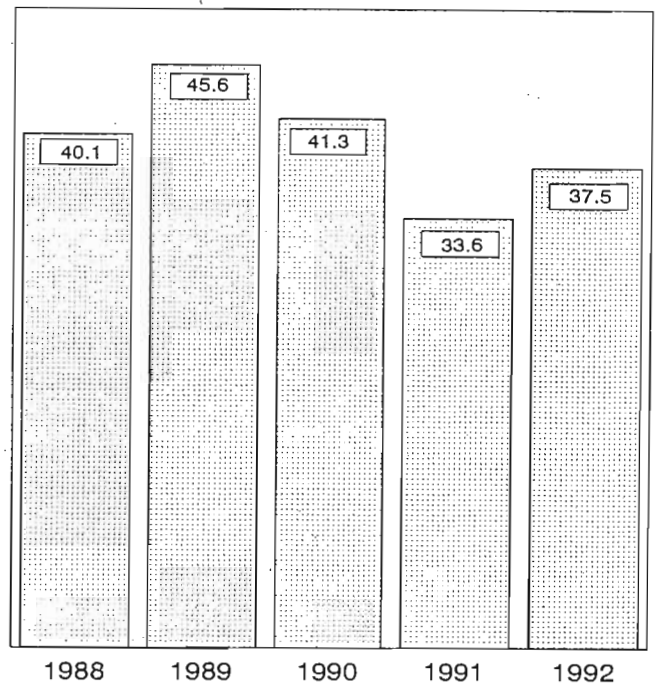


Figure 2. Total fresh papaya utilization, State of Hawaii, 1988-1992.

Figure 4. Fresh papaya outshipments, State of Hawaii, 1988-1992.

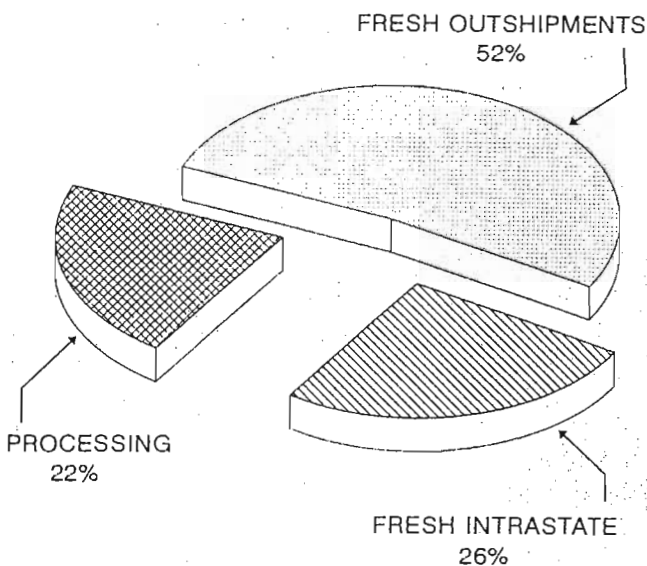


Figure 3. Utilized papaya production, State of Hawaii, 1992.

Oahu

Production nearly doubled in 1992 on the strength of a substantial boost in acreage and a higher yield. Like Kauai, prices were lower which tempered the increase in value.

Maui/Molokai

Statistically, very stable in 1992. Disclosure prevents the publication of individual data.

Looking at the distribution of utilized production and value, it is easy to see how much the Big Island dominates the industry, but the two charts for production and value show that Kauai and Oahu made their best showing of the past five years in 1992.

Table 2 illustrates island breakdowns for the value of utilized production for the past five years. The same relationships exist as for the utilized production total. Kauai and Oahu show up better here because average prices on these two islands were higher than the Big Island.

Another way of looking at the 71.3 million pounds of utilized production is the pie chart (Figure 3) which indicates the portion shipped

Table 2. Papaya value of utilized production, distribution by island, 1988-92.

Year	1988	1989	1990	1991	1992
			Percent		
Hawaii	94.4	96.2	96.5	95.2	92.6
Kauai	3.0	2.0	2.4	2.3	3.0
Oahu	2.6	1.8	1.1	2.5	4.4
State	100.0	100.0	100.0	100.0	100.0

fresh out of the state, amount processed, and local fresh sales.

Out of the total production were 55.8 million pounds that were sold fresh. The bar chart (Figure 2) indicates that the 1992 totals were nearly the same as two other years for the five-year period.

Outshipments

Figure 4 indicates that outshipments follow the same pattern as the fresh utilization, as the percent of fresh utilization that is shipped out of state stays fairly constant for three of the five years. During the five-year period the rate varied from 67 to 71 percent. Outshipments have trended downward during the past several years, with the lost outshipment tonnage being consumed mostly in Hawaii.

Outshipments by Destination

Virtually all outshipments are to the mainland U.S., Japan, and Canada. Table 3 shows how the 37.5 million pounds shipped out of state were allocated in 1992. There were an additional 15,000

Table 3. Papaya outshipments by destination, 1992.

Destination	Million lb	Percent
Mainland	20.9	56
Canada	4.3	11
Japan	12.3	33
Total	37.5	100

Source: Papaya Administrative Committee

lb not shown that went to "other destinations."

Figure 5 quantifies the amounts discussed above. The second pie chart, Figure 6, shows the same data but expressed in percentages.

Imports

It is difficult to get a line on actual imports, as the U.S. Department of Commerce wants about \$2,300 to subscribe to their quarterly CD-ROM import/export data, and I'm having a hard time convincing NASS to come up with the money. I'm requesting them to negotiate an agency-wide subscription in headquarters to help us and other NASS state offices share the cost.

Total imports of papayas and papaya products amounted to \$10.2 million in 1992. This included \$6.7 million of fresh papayas, most of which came from Mexico, although there were some Caribbean countries involved as well. The other \$3.5 million came from dried, pulp, frozen, puree, and other preparations and preserves.

I think we can safely say that Mexico is a major competitor of Hawaii papayas, and this will

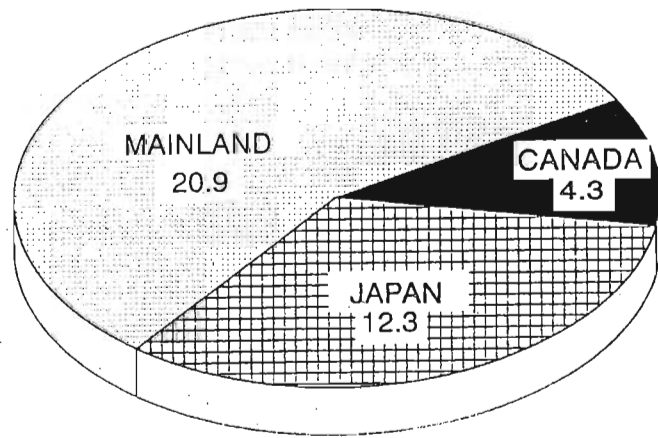
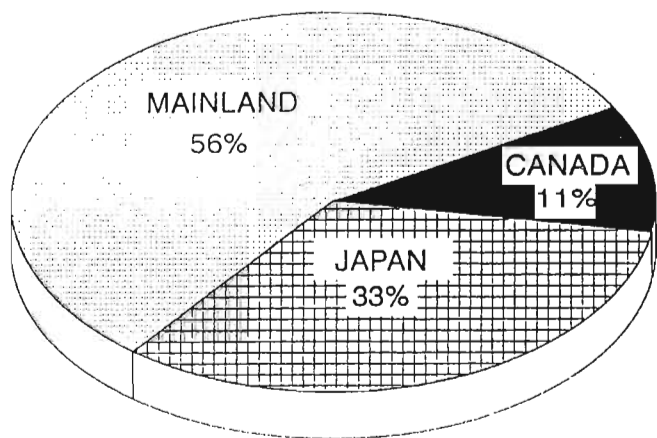


Figure 5. Papaya outshipments by destination; percent distribution (left) and million pounds (right).

probably not diminish, especially with the coming of NAFTA. Mexico, from which the U.S. imported one third of all its fresh fruit and vegetable imports, will probably pose stiff competition in the Canadian market too.

Papaya Objective Yield Survey

We have been conducting this survey on the Big Island to set current production levels for nearly 20 years in partnership with the PAC. To conduct the survey, HASS makes tree and fruit counts in 80 randomly selected orchards at 14-day intervals. The counts are expanded in a model to arrive at a production forecast. Tree counts are made each quarter by laying out a 21 x 21 ft square (approximately .01 acre) and counting the trees in the square. This expansion accounts for the trees that have been lost due to disease, roguing, or storms. The listing summarizes the survey and includes limitations. The partnership with the PAC involves the commitment of resources by both the PAC and HASS. Under this agreement HASS provides:

Maintenance, repairs, garage for PAC pick-up truck,

Research statistician in Honolulu,

Three papaya research aides on Big Island.

In return, the PAC provides:

Pick-up truck lease and insurance,

Field person to identify new growers and locate fields for the Papaya Objective Yield Survey.

Limitations of the survey:

Fruit ripens at differing rates during the year:

Cold: Fruit ripens slower,

Hot: Fruit ripens faster,

Wet followed by hot: Produces skip.

Fruit drop rates are uneven throughout the year.

Only as good as list-building activities for new growers and fields.

We cannot stress enough how important the PAC fieldperson is to the survey. Without this assistance, our producer lists would deteriorate to the point where we could not select a statistically reliable sample for the Objective Yield Survey and we would not be able to continue the survey operations.

Papaya Statistics – Appendix Table 1

HAWAII PAPAYAS



HAWAII



AGRICULTURAL
STATISTICS
SERVICE

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Frequency: Monthly
Release: September 10, 1993

HIGHLIGHTS:

- **AUGUST FRESH SALES ESTIMATED AT 4.8 MILLION POUNDS**
- **FRESH FARM PRICE PEGGED AT 23.0 CENTS PER POUND**

Fresh papaya production from Hawaii is estimated at 4.8 million pounds for August, 8 percent lower than July but 20 percent higher than August 1992. Year-to-date fresh sales were 1 percent lower than the same 8-month period a year ago.

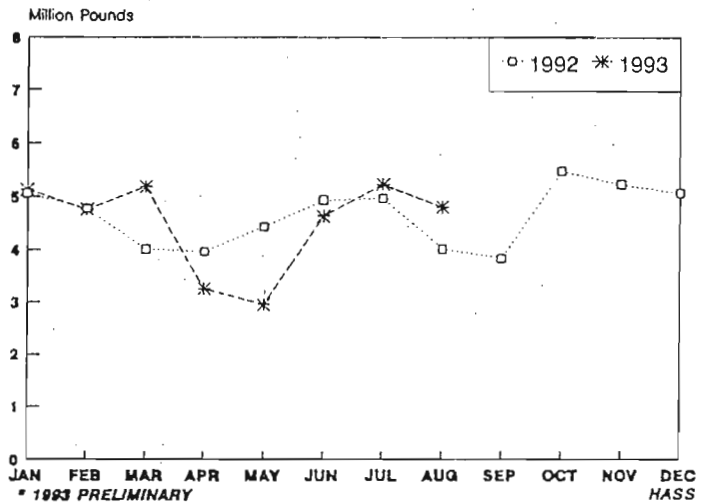
Weather conditions were mixed in August. Sunny skies prevailed during the first and last weeks of August. Showers, heavy at times, and gusty winds occurred at mid-month as two hurricanes passed close to the State.

Area devoted to papaya production is pegged at 3,815 acres, virtually unchanged from last month but 5 percent more than a year ago. Harvested area, totaling 2,575 acres, remained nearly unchanged from July but was 1 percent lower than last August.

Papaya growers are expected to receive an estimated 23.0 cents per pound in August, 5 percent (1.0 cents) higher than July but 1 percent (0.3 cents) lower than a year ago.

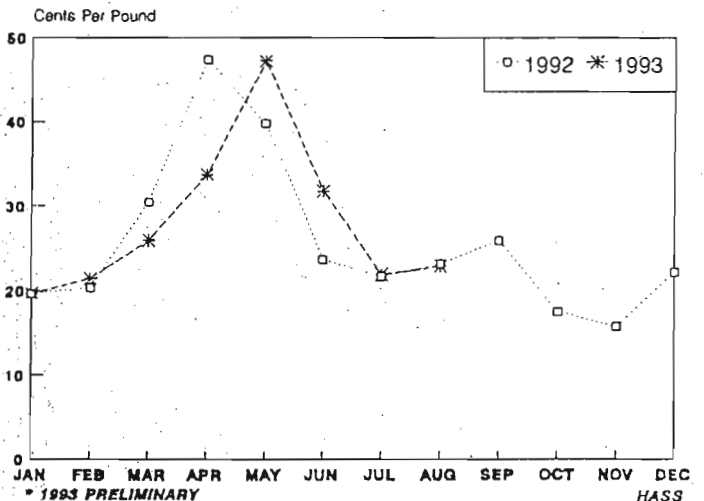
FRESH PAPAYA UTILIZATION

STATE OF HAWAII, 1992-93*



FRESH PAPAYA FARM PRICE

STATE OF HAWAII, 1992-93*



Papaya Statistics – Appendix Table 2

FRESH PAPAYA UTILIZATION, MONTH OF: August 1993

Island	Sales				Year ago	Year-to-date	
	Local ¹	Intrastate	Out-of-State	Total fresh		1992	1993
	1,000 pounds						
Hawaii.....	158	1,052	3,390	4,600	3,740	33,975	34,695
Kauai.....	19	6	0	25	135	1,085	40
Maui/Molokai/Oahu ²	175	15	0	190	140	1,120	1,250
State.....	352	1,073	3,390	4,815	4,015	36,180	35,985

¹ On island of production.

² Combined to avoid disclosure of individual operations.

PAPAYA ACREAGE INVENTORY AS OF: August 1993

Island	Acreage planted in July 1993	Acreage harvested				Acreage for harvest Sep. 1993	Total acreage in crop	
		August 1993			Sep. 1992		Aug. 1, 1992	Aug. 1, 1993
		1 st year of harvest	2 nd year of harvest	Total				
	Acres							
Hawaii.....	NA	1,125	1,300	2,425	2,585	2,445	3,390	3,525
Kauai.....	NA	15	0	15	60	20	95	95
Maui/Molokai/Oahu.....	NA	115	20	135	110	150	140	195
State.....	NA	1,255	1,320	2,575	2,755	2,615	3,625	3,815

NA = Not available.

FRESH PAPAYA FARM PRICE

Year and place of sale		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average
	Cents per pound													
1992	All.....	19.7	20.4	30.5	47.5	39.8	23.7	21.8	23.3	26.0	17.6	15.8	22.3	25.0
	Local.....	23.6	25.1	30.0	45.2	32.0	25.0	24.6	25.0	34.5	20.2	16.4	26.9	
	Mainland.....	16.8	15.8	25.1	42.4	42.5	² 23.2	² 20.7	² 22.6	² 21.8	² 16.2	² 15.4	² 19.7	
	Foreign.....	19.4	21.1	35.3	54.1	44.1	²	²	²	²	²	²	²	
1993 ¹	All.....	19.7	21.5	26.0	33.8	47.3	31.8	22.0	23.0					
	Local.....	23.5	22.3	29.4	39.5	52.4	33.5							
	Mainland.....	² 17.3	² 21.0	² 23.8	² 31.0	² 44.4	² 30.9							
	Foreign.....	²	²	²	²	²	²							

¹ Preliminary.

² Mainland and foreign combined to avoid disclosure of individual operations.

Papaya Statistics – Appendix Table 3

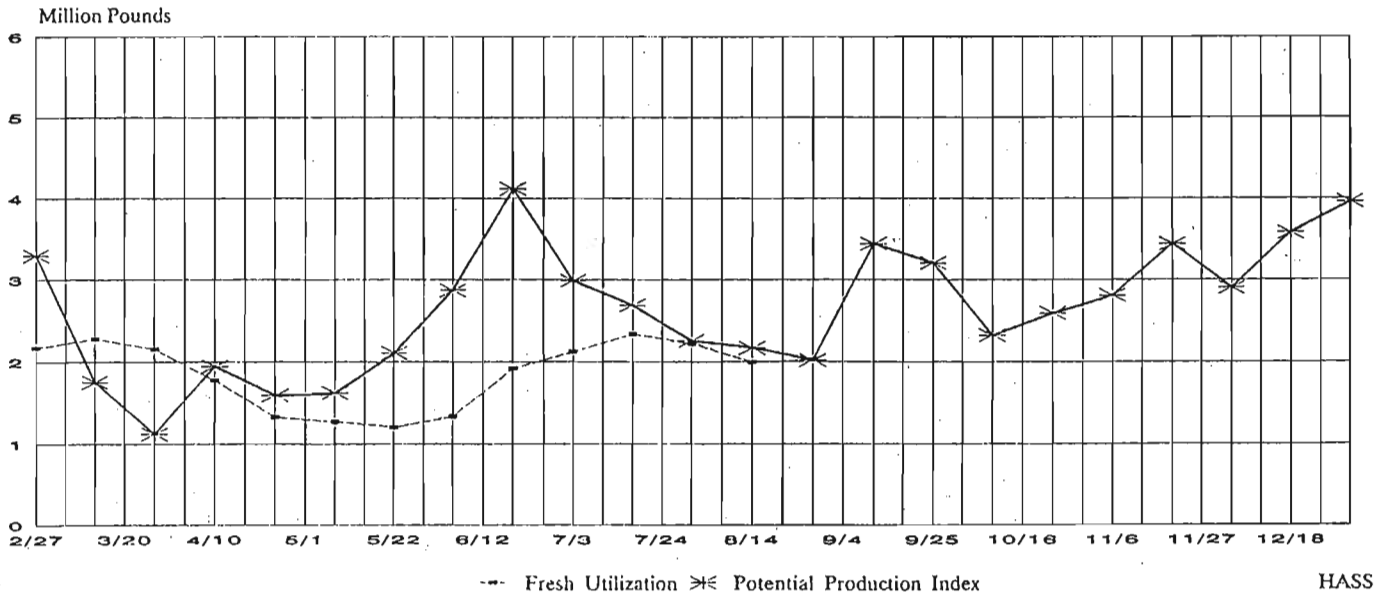
BIWEEKLY HAWAII (BIG ISLAND) POTENTIAL PRODUCTION AND ACTUAL FRESH PAPAYA UTILIZATION

	LATEST BIWEEKLY PERIODS		
	August 1 - 14	August 15 - 28	Year-to-Date ³
TOTAL POTENTIAL PRODUCTION ¹ (000 units)	4,335	4,034	100,392
ACTUAL FRESH UTILIZATION ² (000 pounds)	1,994	2,024	33,507
ACTUAL AS PERCENT OF POTENTIAL	46.0	50.2	33.4

¹ Represents the potential number of fruit (biological production units) which could be produced during specific two-week intervals. It does not take into account survival rate (fruit drop), thinning, grade out, and other factors which could affect the eventual quantity of actual fresh sales. Index values on the graph were calculated by dividing this number by 2 assuming an average fruit weight of 1 pound.

² Actual sales of fresh fruit. Processed fruit not included.

³ Year-to-date commencing January 1, 1993.



Papaya Statistics – Appendix Table 4

PAPAYAS

PAPAYAS: Number of farms, acreage, yield, utilization, price, and value, by islands, 1988-92 ¹

Year	Farms ²	Acreage harvested ²	Yield per acre ³	Utilized production	Utilization		Price per pound			Value of utilized production <i>1,000 dollars</i>
					Fresh	Processed	Fresh	Processed ⁴	All	
<i>Number</i>		<i>Acres</i>	<i>1,000 pounds</i>			<i>Cents</i>				
State										
1988	305	2,300	30.0	69,000	57,000	12,000	21.0	3.2	17.9	12,354
1989	325	2,500	29.6	74,000	64,000	10,000	22.0	3.0	19.4	14,380
1990	311	2,400	28.5	68,500	58,000	10,500	25.0	2.9	21.6	14,805
1991	271	2,025	27.3	55,350	48,150	7,200	33.3	2.7	29.3	16,228
1992	259	2,415	29.5	71,300	55,800	15,500	25.0	3.0	20.2	14,415
Hawaii										
1988	250	2,172	30.6	66,358	54,635	11,723	20.7		17.6	11,656
1989	277	2,373	30.4	72,068	62,080	9,988	21.8		19.2	13,825
1990	266	2,280	29.4	67,045	56,545	⁷ 10,500	24.7		21.3	14,282
1991	229	1,915	28.0	53,685	46,485	⁷ 7,200	32.8		28.8	15,441
1992	213	2,275	30.1	68,455	52,955	⁷ 15,500	24.3		19.5	13,350
Kauai										
1988	20	70	19.9	1,394	1,370	24	⁶ 28.9		⁶ 26.4	⁵ 376
1989	18	65	15.1	982	970	⁶ 12	⁶ 28.9		⁶ 28.7	⁵ 289
1990	16	50	15.8	790	790	⁷	⁵ 35.5		⁵ 35.5	⁵ 359
1991	16	40	17.4	695	695	⁷	⁵ 42.3		⁵ 41.7	⁵ 387
1992	15	45	25.2	1,135	1,135	⁷	⁵ 31.7		⁵ 31.7	⁵ 434
Maui/Molokai										
1988	5	8	7.5	60	60	0	⁶		⁶	⁵
1989	4	16	9.7	155	155	⁶	⁶		⁶	⁵
1990	5	30	7.3	220	220	0	⁵		⁵	⁵
1991	4	30	7.3	220	220	0	⁵		⁵	⁵
1992	5	30	7.8	235	235	0	⁵		⁵	⁵
Oahu										
1988	30	50	23.8	1,188	935	253	⁶		⁶	322
1989	26	46	17.3	795	795	⁶	⁶		⁶	266
1990	24	40	11.1	445	445	0	36.8		36.8	164
1991	22	40	18.8	750	750	0	53.3		53.3	400
1992	26	65	22.7	1,475	1,475	0	42.8		42.8	631

¹ Sum of island estimates may not add to State total due to rounding.

² Average of monthly estimates.

³ Utilized production divided by acreage harvested.

⁴ Island data not shown separately to avoid disclosure of individual operations.

⁵ Maui and Molokai combined with Kauai to avoid disclosure of individual operations.

⁶ Oahu, Maui and Molokai combined with Kauai to avoid disclosure of individual operations.

⁷ Kauai combined with Hawaii to avoid disclosure of individual operations.

Papaya Statistics – Appendix Table 5

PAPAYAS

PAPAYAS: Acreage, utilization, price, and outshipments, State of Hawaii, 1988-92

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total or average
Harvested acres ¹													
1988	2,175	2,225	2,200	2,175	2,325	2,220	2,290	2,310	2,410	2,375	2,420	2,410	2,300
1989	2,450	2,295	2,360	2,345	2,410	2,480	2,495	2,505	2,550	2,625	2,735	2,745	2,500
1990	2,675	2,560	2,490	2,435	2,365	2,370	2,405	2,175	2,220	2,405	2,420	2,285	2,400
1991	2,165	2,035	2,020	1,905	1,925	1,880	1,950	2,080	2,095	2,070	2,060	2,115	2,025
1992	2,025	2,150	2,160	2,190	2,190	2,410	2,465	2,590	2,755	2,640	2,655	2,745	2,415
Utilization (fresh and processed) - 1,000 pounds													
1988	4,525	3,300	3,290	4,710	5,315	5,715	6,740	6,160	7,255	7,730	7,105	7,155	69,000
1989	5,355	4,980	5,760	6,900	6,420	6,580	6,110	6,210	5,865	6,760	6,905	6,155	74,000
1990	5,605	5,020	5,720	5,810	6,860	4,995	3,415	6,790	5,595	6,150	6,675	5,865	68,500
1991	5,285	3,890	3,525	4,200	3,760	3,420	3,670	3,590	5,015	6,445	5,885	6,665	55,350
1992	6,175	6,280	5,170	5,135	5,930	7,045	7,815	5,155	4,360	6,395	6,085	5,755	71,300
Total fresh papaya utilization - 1,000 pounds													
1988	4,030	3,000	3,100	4,340	4,340	4,580	5,470	4,930	5,820	5,835	5,665	5,890	57,000
1989	4,425	4,165	4,830	5,945	5,475	5,645	5,130	5,290	5,165	6,130	6,270	5,530	64,000
1990	5,005	4,480	4,840	4,780	5,120	4,285	3,145	6,160	4,815	5,170	5,555	4,645	58,000
1991	4,665	3,365	3,155	3,890	3,350	2,895	3,290	3,205	4,460	5,380	4,820	5,675	48,150
1992	5,055	4,785	4,010	3,960	4,445	4,940	4,970	4,015	3,835	5,475	5,235	5,075	55,800
Intrastate fresh papaya utilization - 1,000 pounds													
1988	1,165	971	1,034	1,360	1,443	1,415	1,532	1,548	1,559	1,593	1,638	1,617	16,875
1989	1,489	1,426	1,450	1,830	1,574	1,339	1,513	1,518	1,415	1,895	1,642	1,309	18,400
1990	1,720	1,310	1,505	1,620	1,410	930	895	1,405	1,300	1,510	1,555	1,515	16,675
1991	1,400	1,160	965	1,040	1,000	865	910	1,130	1,455	1,525	1,525	1,625	14,600
1992	1,560	1,590	1,415	1,505	1,345	1,340	1,330	1,210	1,265	1,940	1,990	1,800	18,290
Outshipments of fresh papayas - 1,000 pounds													
1988	2,865	2,029	2,066	2,980	2,897	3,165	3,938	3,382	4,261	4,242	4,027	4,273	40,125
1989	2,936	2,739	3,380	4,115	3,901	4,306	3,617	3,772	3,750	4,235	4,628	4,221	45,600
1990	3,285	3,170	3,335	3,160	3,710	3,355	2,250	4,755	3,515	3,660	4,000	3,130	41,325
1991	3,265	2,205	2,190	2,850	2,350	2,030	2,380	2,075	3,005	3,855	3,295	4,050	33,550
1992	3,495	3,195	2,595	2,455	3,100	3,600	3,640	2,805	2,570	3,535	3,245	3,275	37,510
Farm price for fresh market sales (to all markets) - cents per pound													
1988	18.9	28.6	39.2	36.0	22.8	20.4	18.8	18.2	16.3	15.3	14.9	16.8	21.0
1989	22.0	25.4	27.7	29.0	25.3	21.1	20.7	21.6	19.8	20.0	16.2	16.9	22.0
1990	21.2	22.3	26.7	33.0	23.3	35.9	42.3	23.7	18.1	20.9	20.6	20.4	25.0
1991	24.6	32.3	42.1	48.7	51.0	52.4	54.9	36.8	23.4	18.6	21.2	23.0	33.3
1992	19.7	20.4	30.5	47.5	39.8	23.7	21.8	23.3	26.0	17.6	15.8	22.3	25.0

¹ Total is average of monthly data.