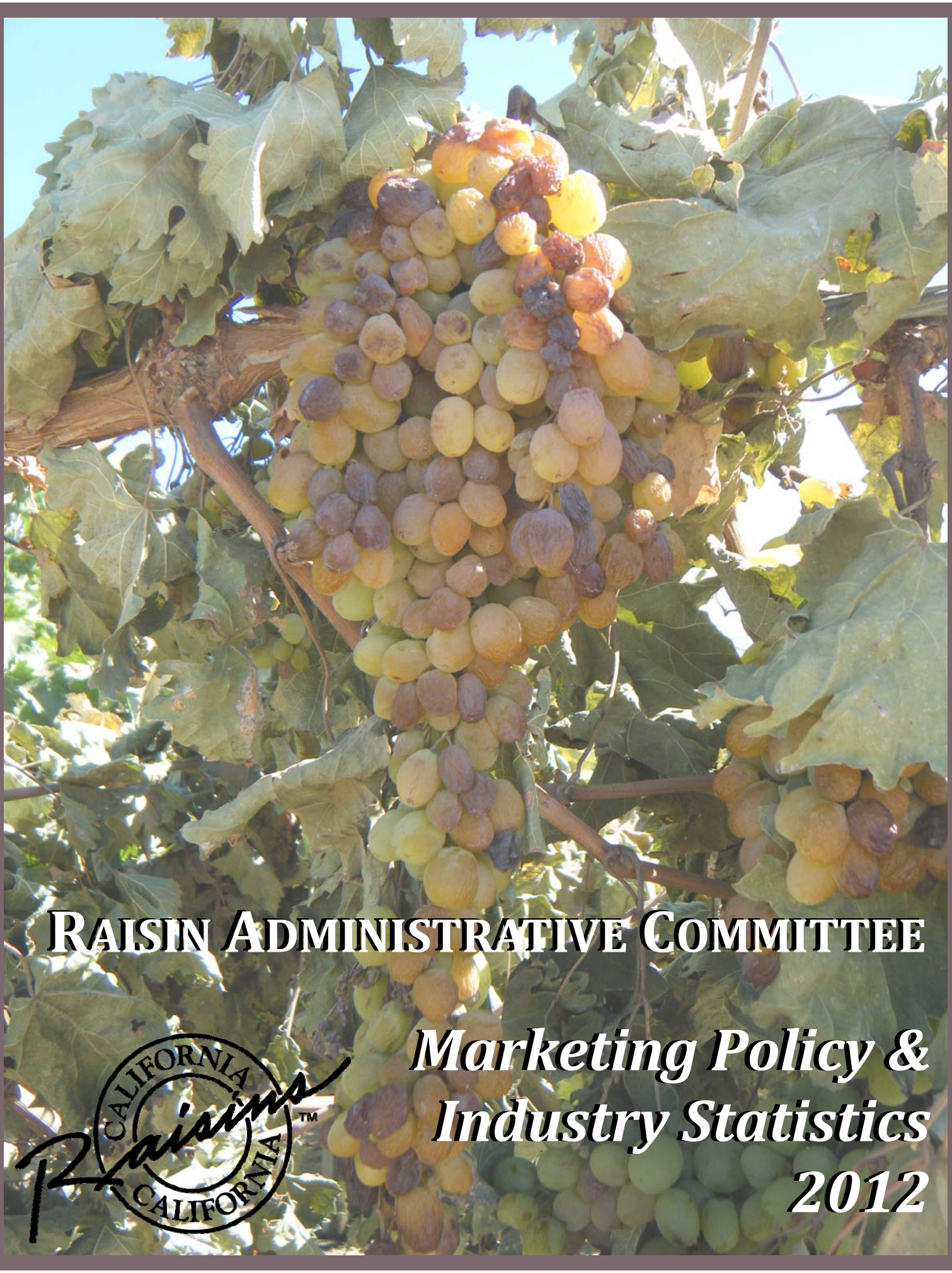

RAISIN ADMINISTRATIVE COMMITTEE

Marketing Policy & Industry Statistics 2012

Raisin Administrative Committee

Marketing Policy & Industry Statistics
2012 – 2013 Marketing Season

As Presented and Approved by the RAC on October 3, 2012
and Submitted to the Secretary.

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From Federal Marketing Order 989.54(e) Factors. When computing preliminary and interim percentages, or determining final percentages for recommendation to the Secretary, the Committee shall give consideration to the following factors:

(1) THE ESTIMATED TONNAGE HELD AT THE BEGINNING OF THE CROP YEAR.

(A) Tonnage held by producers.

1,169 tons were being held on Memorandum Storage as of July 31, 2012.

(B) Tonnage held by handlers.

Packer inventory of raisins as of July 31, 2012, with comparative tonnages for July 31, 2011 was as follows:

	*PACKER INVENTORY * as of 07/31/11 Held Locally*	*PACKER INVENTORY * as of 07/31/12 Held Locally*
Natural Seedless	**110,206**	**132,061**
Dipped Seedless	**1,420**	**1,713**
Golden Seedless	**3,969**	**6,684**
Zante Currant	**1,993**	**2,625**
Sultana	**31**	**47**
Muscat	**22**	**23**
Monukka	**168**	**171**
Other Seedless	**3,888**	**3,911**
Other Seedless Sulfured	**682**	**609**
TOTAL	**122,379**	**147,844**

** Includes packed and unpacked in sweatbox tons*

20 Year Natural Seedless Carry-in Inventory (Free Tonnage & Reserve)

1993-94	170,351
1994-95	153,470
1995-96	202,854
1996-97	137,679
1997-98	93,071
1998-99	164,657
1999-00	101,946
2000-01	138,503
2001-02	269,319
2002-03	236,860
2003-04	262,250
2004-05	196,361
2005-06	141,049

2006-07	160,930
2007-08	126,294
2008-09	106,896
2009-10	138,978
2010-11	83,214
2011-12	110,208
2012-13	132,061
20 Year Average	***156,348***

(C) Estimated tonnage held by Committee as of August 1, 2012.

The Committee held 0 tons of Natural Seedless reserve pool raisins.

(2) THE EXPECTED GENERAL QUALITY AND ANY MODIFICATIONS OF THE MINIMUM GRADE STANDARDS.

(A) The 2012 harvest was on time.

(B) During the 2011-12 crop year, incoming substandard and quality standards were maintained at the standard level. Substandard dockage has a maximum limit of 17% and B or Better maturity dockage allowance has a minimum limit of 35%.

(C) Although raisins produced from grapes grown outside of the State of California are not subject to volume regulations or grade and condition standards established under the marketing order, the surveillance and reporting provisions for any such raisins received by raisin handlers will continue for the 2012-2013 crop year. Arizona declared fruit must be validated as produced in Arizona or will be subjected to all requirements of California grown fruit.

(3) THE ESTIMATED TONNAGE OF STANDARD AND OFF-GRADE RAISINS WHICH WILL BE PRODUCED.

(A) The Committee met on August 15, 2012 and recognized the computed Trade Demand for Natural (sun-dried) Seedless and all other varietal types (see chart on page 8). The Committee voted to not establish volume regulations, thereby declaring Natural (sun-dried) Seedless and all other varietal types 100% Free. This resulted in no trade demands or volume regulations for the 2012/13 crop year.

Varietal Type	Trade Demand	Estimated Production	Preliminary Percentages* Free	Reserve
Natural Seedless + **	NONE		100%	0%
Dipped Seedless**	NONE		100%	0%
Golden Seedless**	NONE		100%	0%
Zante Currant**	NONE		100%	0%
Sultana**	NONE		100%	0%
Muscat**	NONE		100%	0%
Monukka**	NONE		100%	0%
Other Seedless**	NONE		100%	0%
Other Seedless Sulf.**	NONE		100%	0%

+ Beginning with the 2003-04 Crop Year, the Natural Seedless varietal type was modified through informal rule making to include Oleate Seedless (68 FR 42943: July 21, 2003).

** The Committee computed but did not accept a Trade Demand for all varietal types of raisins resulting in them being unregulated for the crop year 2012-13.

The 2012 August 1 grape estimate and the 2011 and 2010 final grape crops (in green tons) are as follows:

Varietal Type	***September 18 2012***	Final 2011	2010
Wine	3,700,000	3,387,000	3,500,000
Table	1,000,000	1,031,000	900,000
Raisin	1,900,000	2,194,000	2,079,000
Total	6,600,000	6,612,000	6,479,000

Source: USDA California Fruit & Nut Review, September 2012

(B) Estimate of Tunnel Dehydrated Raisin Production.

Production of Golden Seedless raisins in the 2011-2012 crop year was 21,960 swb tons. The carry-over from that year was 6,684 tons. Dipped Seedless production in 2011-2012 was 2,352 tons with a carry-over of 1,713 tons. The Committee will determine a 2012-13 crop estimate for Golden Seedless and Dipped Seedless raisins.

(C) Estimated Tonnage of Off Grade Raisins to be Produced.

The 2012 growing season was favorable resulting in an on-time harvest.

(4) THE ESTIMATED TRADE DEMAND FOR RAISINS IN FREE TONNAGE OUTLETS.

(A) The tonnage of raisins marketed in recent crop years in domestic and Canadian markets, including government purchases, on a packed tonnage basis is shown in the following table:

Domestic & Canadian Markets Packed Tons					
Varietal Type	2007-08	2008-09	2009-10	2010-11	***2011-12***
Natural Seedless	193,609	191,929	186,176	180,344	183,703
Dipped Seedless	3,651	3,480	3,629	4,803	1,618
Golden Seedless	11,263	11,539	11,699	12,614	11,986
Zante Currants	1,535	1,536	1,382	1,090	1,205
Sultanas	42	56	52	37	58
Muscats	5	2	0	2	0
Monukkas	269	347	126	101	142
Other Seedless	4,944	4,363	5,385	7,237	5,750
Other Seedless Sulf.	491	406	422	396	450
Total	215,809	213,658	208,871	206,624	204,912
Five-Yr. Average					209,975

(B) Free tonnage marketed in foreign markets during the past five years:

Export Markets Packed Tons					
Varietal Type	2007-08	2008-09	2009-10	2010-11	***2011-12***
Natural Seedless	142,541	125,789	152,246	129,198	119,373
Dipped Seedless	0	0	19	30	158
Golden Seedless	4,823	5,217	4,858	5,848	5,206
Zante Currants	2,881	1,771	781	1,003	905
Sultanas	0	0	0	0	0
Muscats	0	0	0	0	0
Monukkas	1	1	0	0	0
Other Seedless	771	760	1097	1,144	2,434
Other Seedless Sulf.	0	0	21	144	105
Total	151,017	133,538	159,022	137,367	128,181
Five-Yr. Average					141,825

(5) AN ESTIMATED DESIRABLE CARRYOUT AT THE END OF THE CROP YEAR FOR FREE TONNAGE AND, IF APPLICABLE, FOR RESERVE TONNAGE.

Free Tonnage – The Committee's unanimous recommendation on February 23, 2011 was approved by USDA to change the desirable carryout from 60,000 tons to 85,000 tons, for Natural (sun-dried) Seedless raisins. The desirable carry-out calculation for other varietal types remained at a rolling average of 2.5-months of prior year's shipments over the past five years, dropping the high and low figure. (The rule was published in the Federal Register on July 18, 2011.)

(6) THE ESTIMATED MARKET REQUIREMENTS FOR RAISINS OUTSIDE FREE TONNAGE OUTLETS, CONSIDERING THE ESTIMATED WORLD RAISIN SUPPLY AND DEMAND SITUATION.

The export and the domestic demand is supplied from free tonnage raisins. The export of California Natural Seedless raisins decreased by 9,825 packed tons to 119,373 packed tons during 2011-2012 from 129,198 packed tons in 2010-11.

The following table shows the shipments of raisins on a packed weight basis for the 2011-2012 crop year.

Countries of Destination	Natural Seedless	Golden Seedless	Other
Australia	8,511	125	163
Belgium	922	12	0
China*	11,949	3	236
Denmark	3,504	0	23
Finland	1,726	0	0
France	210	0	0
Germany	10,788	0	54
Hong Kong	1,642	204	48
Japan	18,727	0	912
Malaysia	3,563	858	67
Netherlands	3,608	86	0
New Zealand	1,652	37	18
Norway	3,305	0	0
Philippines	2,311	5	10
Singapore	1,246	306	92
South Ireland	767	0	0
South Korea	3,730	8	6
Sweden	7,033	0	7
Switzerland	1	0	0
Taiwan	4,007	515	55
Thailand	2,123	91	77
United Kingdom	13,282	172	21
Latin America	7,733	91	1,555
All Other Markets	7,033	2,693	258
TOTAL	119,373	5,206	3,602

*Historically a large volume of China exports are transshipped directly to Japan.

The RAC will be sending a delegation to the International Conference of Dried Grape Producing Countries and will return with up to date statistics.

(7) CURRENT PRICES BEING RECEIVED AND THE PROBABLE GENERAL LEVEL OF PRICES TO BE RECEIVED FOR RAISINS BY PRODUCERS AND HANDLERS.

(A) Negotiations between packers and the RBA are being held pursuant to the terms of their contract.

Probable Prices to be Received by Producers for the 2012-2013 Crop

Natural Seedless	$ _____	*Per Pound*
Dipped Seedless	$ _____	*Per Pound*
Golden Seedless	$ _____	*Per Pound*
Zante Currants	$ _____	*Per Pound*
Sultanas	$ _____	*Per Pound*
Muscats	$ _____	*Per Pound*
Monukkas	$ _____	*Per Pound*
Other Seedless	$ _____	*Per Pound*
Other Seedless Sulf.	$ _____	*Per Pound*

(B) Current Prices Being Quoted by Handlers as of September, FOB

Natural Seedless	$ _____	*Per Pound*
Dipped Seedless	$ _____	*Per Pound*
Golden Seedless	$ _____	*Per Pound*
Zante Currants	$ _____	*Per Pound*
Other Seedless	$ _____	*Per Pound*

(8) THE TREND AND LEVEL OF CONSUMER INCOME.

For three years now the annual rate of economic growth has ranged from 1.8-2.4 percent, and we expect 2013 will be at 1.8 percent thereby suggesting that what was perceived as a weak recovery will become viewed as the new reality of the American economy. Moreover, what many might have considered a modest, but at least temporary subpar pace of economic and job growth has now morphed into the normal pace of growth in this expansion.

Real economic growth this year has benefited from gains in consumer spending, equipment investment and a mild recovery in housing and yet, these gains remain subpar relative to earlier economic recoveries. Looking ahead, personal consumption is expected to be up 1.5 percent for the second half of this year after a gain of 2 percent plus in the first half and 2.5 percent in 2011, as both real disposable income and job gains have slowed.

Source: Wells Fargo Economic Group Outlook; September 12, 2012

Historically, California raisins maintain good market demand even in weaker economic times.

(9) ANY OTHER PERTINENT FACTORS BEARING ON THE MARKETING OF SUCH RAISINS INCLUDING THE ESTIMATED SUPPLY AND DEMAND FOR OTHER VARIETAL TYPES AND REGULATIONS APPLICABLE THERETO.

Trade Demand

Raisin Administrative Committee

2012-2013

	Natural Seedless	Dipped Seedless	Golden Seedless	Zante Currants	Sultanas	Muscats	Monukkas	Other Seedless	Other Sulf. Seedless
Base Shipments (Packed Tons)	303,076	1,776	17,191	2,109	58	0	142	8,184	555
./. Shrink Factor (5 yr avg)	0.95000	0.89035	0.90064	0.85853	0.69203	(1.27854)	0.91848	0.85156	1.03518
Shrink %	5.000	10.965	9.936	14.147	30.797	227.854	8.152	14.844	(3.518)
= Base Tonnage (Sweatbox Tons)	319,027	1,995	19,088	2,457	84	0	155	9,611	536
x 90% Formula	90%	90%	90%	90%	90%	90%	90%	90%	90%
= Adjusted Base	287,125	1,795	17,179	2,211	75	0	139	8,650	483
Physical Inventory 07/31/12	132,061	1,713	6,684	2,625	47	23	171	3,911	609
- Desirable Inventory	85,000	904	3,716	719	6	(1)	23	1,677	77
= ± Inventory Adjustment	(47,061)	(809)	(2,968)	(1,906)	(41)	(24)	(148)	(2,234)	(532)
= Computed Trade Demand	240,064	986	14,211	305	34	(24)	(9)	6,416	(49)
2012/13 Final Trade Demand	**NO TRADE DEMAND ESTABLISHED**								

NOTE: Prior Years' Practice sets 500 minimum

2011/2012 Shrink for Natural Seedless Raisins is 6.5994%

General Information: Shrink

In the processing of raisins, a shrinkage occurs. Annually, the "shrinkage" varies due to growing conditions. Shrinkage is computed by determining the disappearance between the total available natural condition supply and the quantity reported as processed. This "Shrinkage" or loss is reflected as a conversion factor throughout this report to account for the difference between natural condition "sweatbox" and processed "packed" weights.

The table on this page shows the annual conversion factors used to convert packed tonnage figures to a sweatbox basis.

Conversion Factors are applied to reported packed weight to determine the sweatbox equivalent. Packed tons are divided by the conversion factor to obtain the equivalent sweatbox weight.

Conversion of sweatbox weight to a packed weight basis is accomplished by multiplying the sweatbox weight by the conversion factor.

	07-08	08-09	09-10	10-11	11-12
Natural Seedless	0.962	0.956	0.955	0.943	0.934
Dipped Seedless	0.782	1.090	0.827	0.890	0.862
Golden Seedless	0.893	0.895	0.926	0.897	0.893
Zante Currants	0.894	0.860	0.873	0.834	0.832
Sultanas	0.490	0.728	0.626	0.647	0.969
Muscats	0.572	0.124	-9.089	1.000	1.000
Monukkas	0.796	0.922	0.821	0.930	1.124
Other Seedless	0.962	0.807	0.802	0.772	0.915
Other Seedless Sulf.	0.750	1.599	0.913	0.867	1.047

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Part IV – Members, Alternates and Staff

Part V – Misc. California Raisin Research Projects

Table 1

California Bearing Grape Acreage
By Varietal Type, Production and Yield Per Acre

Year	BEARING ACREAGE Total	Wine	Table	Raisins	Fresh Grape Production (tons)	Yield Per Acre (tons)
2003	819,000	479,000	85,000	255,000	5,790,000	7.07
2004	800,000	473,000	83,000	244,000	5,700,000	7.13
2005	800,000	477,000	83,000	240,000	6,978,000	8.72
2006	797,000	480,000	83,000	234,000	5,726,000	7.18
2007	789,000	480,000	82,000	227,000	6,230,000	7.90
2008	786,000	482,000	83,000	221,000	6,532,000	8.31
2009	789,000	489,000	84,000	216,000	6,548,000	8.30
2010	789,000	489,000	84,000	209,076	6,544,000	8.29
2011	792,000	497,000	85,000	210,000	6,700,000	8.46
2012	796,000	506,000	85,000	205,000	6,488,000	8.15
TEN YEAR AVERAGE	795,700	485,200	83,700	226,108	6,323,600	7.95

Source: Agricultural Statistics Board NASS, USDA - April 2012

The total production of grapes in California continues to be influenced more by the change in production per acre than by any change in bearing acreage. The ten year average grape production per acre was 5.2 tons - 1940-49; 6.2 tons - 1950-59; 7.1 tons - 1960-69; 7.0 tons - 1970-79; 7.92 tons - 1980-89 and 8.02 tons for the ten years 1990-99. The increased production per acre has been significant in the increase in total grape production. The 10 year average bearing acreage for 1940-49 was 501,785 acres, the 10 year average for 1980-89 was 643,329 acres and 673,270 acres for the ten years 1990-99.

Table 1A

California Non-Bearing Grape Acreage
By Varietal Type

	NON-BEARING ACREAGE			
Year	Total	Wine	Table	Raisins
2002	85,000	70,000	9,000	6,000
2003	43,884	34,913	5,905	3,066
2004	36,069	26,639	6,626	2,804
2005	38,281	25,856	7,531	4,894
2006	39,977	27,280	8,268	4,429
2007	59,000	43,000	10,000	6,000
2008	58,000	44,000	10,000	4,000
2009	54,000	42,000	9,000	3,000
2010	50,000	38,000	9,000	3,000
2011	52,000	37,000	11,000	4,000
TEN YEAR AVERAGE	51,621	38,869	8,633	4,119

Source: Agricultural Statistics Board NASS, USDA - March 2012

Table 2

California Total Annual Grape Production
By Varietal Type and Utilization
2007-2011
(Fresh Tons)

Varietal Type	2007-2008 Crop		2008-2009 Crop		*2009-2010 Crop*		2010-2011 Crop		*2011-2012 Crop*	
	Tons	*%*	Tons	%	*Tons*	*%*	*Tons*	*%*	*Tons*	*%*
Raisins										
Dried	1,593,000	74.06	1,838,000	72.94	1,463,000	75.92	1,665,000	80.09	1,541,000	75.06
Crushed	364,000	16.92	494,000	19.60	307,000	15.93	274,000	13.18	373,000	18.17
Canned	21,000	0.98	25,000	0.99	20,000	1.04	25,000	1.20	25,000	1.22
Fresh Sales	173,000	8.04	163,000	6.47	137,000	7.11	115,000	5.53	114,000	5.55
Total Production	2,151,000	34.53	2,520,000	38.49	1,927,000	29.45	2,079,000	30.96	2,053,000	31.64
Wine										
Crushed	3,247,000	98.78	3,015,000	98.69	3,703,000	98.93	3,589,000	98.90	3,343,000	98.82
Fresh Sales	40,000	1.22	40,000	1.31	40,000	1.07	40,000	1.10	40,000	1.18
Total Production	3,287,000	52.77	3,055,000	46.66	3,743,000	57.20	3,629,000	54.04	3,383,000	52.14
Table										
Dried	28,000	3.54	35,000	3.60	34,000	3.89	55,000	5.46	55,000	5.04
Crushed	63,000	7.96	165,000	16.96	85,000	9.73	124,000	12.30	210,000	19.23
Fresh Sales	700,000	88.50	773,000	79.45	755,000	86.38	829,000	82.24	827,000	75.73
Total Production	791,000	12.70	973,000	14.86	874,000	13.36	1,008,000	15.01	1,092,000	16.83
Total Grape										
Dried	1,621,000	26.02	1,873,000	28.60	1,497,000	22.88	1,720,000	25.61	1,596,000	24.60
Crushed	3,674,000	58.98	3,674,000	56.11	4,095,000	62.58	3,987,000	59.37	3,926,000	60.51
Canned	21,000	0.34	25,000	0.38	20,000	0.31	25,000	0.37	25,000	0.39
Fresh Sales	913,000	14.66	976,000	14.91	932,000	14.24	984,000	14.65	941,000	14.50
Total Production	6,229,000	100.00	6,548,000	100.00	6,544,000	100.00	6,716,000	100.00	6,488,000	100.00

Percentages in Relation to Total Annual Production and Type of Production

Source: Agricultural Statistics Board NASS, USDA, Noncitrus Fruits and Nuts - March 2012. Percentages computed by the RAC.

Table 3

Raisin Deliveries By Varietal Types
2002-2011
(Sweatbox Tons)

Varietal Type	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	*2011-12*
Natural Seedless	388,010	*(a)* 296,864	(b) 265,262	319,126	282,999	329,288	364,268	298,532	354,878	346,132
Dipped Seedless	8,907	11,933	5,839	8,044	2,456	3,225	4,845	3,827	4,440	2,352
Oleate Seedless *	18,385	0	0	0	0	0	0	0	0	0
Golden Seedless	19,119	15,650	19,353	15,474	13,833	17,626	19,782	17,008	21,827	21,960
Zante Currants	4,385	3,029	3,495	3,800	2,968	3,347	2,912	2,708	3,468	3,167
Sultanas	86	84	34	75	216	93	67	63	66	76
Muscat	34	20	0	2	7	3	5	8	5	3
Monukka	620	336	235	156	364	280	287	155	140	130
Other Seedless	3,468	2,593	2,649	8,353	5,170	5,231	6,529	7,304	11,351	9,035
Other Seedless, Sulf.	365	1,309	374	412	963	687	521	413	808	471
TOTALS	443,379	331,818	297,241	355,442	308,976	359,780	399,217	330,018	396,983	383,326

(a) **Includes 50,840 tons of Raisin Diversion Tonnage**
(b) **Includes 15,299 tons of Raisin Diversion Tonnage**

*** Oleates are included in Natural Seedless tonnage starting in 2003-2004**

RAC - September 2012

Table 4

Free Tonnage Shipments By Country of Destination
Natural Seedless Raisins
August 1 - July 31
(Packed Tons)

Country of Destination	2010-2011	*2011-2012*	Percent Gain/Loss (2010-2011=100%)
European Countries			
Austria	148	253	71.48%
Belgium	1,263	922	-27.01%
Denmark	4,834	3,504	-27.52%
So. Ireland	815	767	-6.00%
Finland	1,708	1,726	1.03%
France	605	210	-65.24%
Germany	13,240	10,788	-18.52%
Israel	811	771	-4.93%
Italy	66	44	-32.69%
Netherlands	2,926	3,608	23.33%
Norway	3,397	3,305	-2.71%
Spain	730	499	-31.65%
Sweden	5,350	7,033	31.45%
Switzerland	284	1	-99.60%
United Kingdom	18,592	13,282	-28.56%
Total European Countries	54,769	46,713	-14.71%
Latin American Republics			
Brazil	413	554	34.07%
Colombia	234	264	12.92%
Costa Rica	206	194	-6.11%
Dominican Republic	773	850	9.97%
Ecuador	16	14	-15.50%
Mexico	5,050	4,015	-20.49%
Panama	596	446	-25.19%
Puerto Rico	0	0	0.00%
Venzuela	363	397	9.40%
Others	1,107	999	-9.79%
Total Latin American Republics	8,758	7,733	-11.71%
Other Countries			
Australia	7,543	8,511	12.83%
China	12,262	11,949	-2.55%
Hong Kong	1,679	1,642	-2.20%
Iceland	292	305	4.52%
Indonesia	1,634	1,206	-26.18%
Japan	17,412	18,727	7.55%
Korea	4,020	3,730	-7.21%
Malaysia	3,367	3,563	5.81%
New Zealand	1,950	1,652	-15.29%
USSR - Russia	290	143	-50.52%
Philippines	2,446	2,311	-5.50%
Singapore	1,841	1,246	-32.31%
Taiwan	4,611	4,007	-13.11%
Thailand	1,730	2,123	22.74%
Others	4,594	3,812	-17.03%
Total Other Countries	65,671	64,927	-1.13%
GRAND TOTAL	129,198	119,373	-7.60%

RAC - September 2012

Table 4 ZC

Free Tonnage Shipments By Country of Destination
Zante Currant Raisins
August 1 - July 31
(Packed Tons)

Country of Destination	2010-2011	*2011-2012*	Percent Gain/Loss (2010-2011=100%)
European Countries			
Austria	0	0	0.00%
Belgium	0	0	0.00%
Denmark	0	0	0.00%
So. Ireland	0	0	0.00%
Finland	0	0	0.00%
France	0	0	0.00%
Germany	0	0	0.00%
Israel	13	29	123.25%
Italy	0	0	0.00%
Netherlands	0	0	0.00%
Norway	0	0	0.00%
Spain	0	0	0.00%
Sweden	9	7	-20.92%
Switzerland	0	0	0.00%
United Kingdom	0	0	0.00%
Total European Countries	22	36	65.39%
Latin American Republics			
Brazil	30	39	29.63%
Colombia	0	0	0.00%
Costa Rica	0	0	0.00%
Dominican Republic	0	0	0.00%
Ecuador	0	0	0.00%
Mexico	0	1	100.00%
Panama	0	0	0.00%
Puerto Rico	0	0	0.00%
Venzuela	0	0	0.00%
Others	2	0	-100.00%
Total Latin American Republics	32	40	25.95%
Other Countries			
Australia	5	42	754.16%
China	328	236	-27.93%
Hong Kong	21	12	-41.01%
Iceland	0	0	0.00%
Indonesia	85	116	35.75%
Japan	389	291	-25.16%
Korea	16	6	-61.22%
Malaysia	36	34	-5.30%
New Zealand	0	0	0.00%
USSR - Russia	0	10	100.00%
Philippines	5	61	1115.60%
Singapore	46	21	-54.75%
Taiwan	18	0	-100.00%
Thailand	0	0	0.00%
Others	0	0	0.00%
Total Other Countries	949	829	-12.63%
GRAND TOTAL	1,003	906	-9.70%

RAC - September 2012

Table 4A

Free Tonnage Export Shipments

(Excluding Canada)

Natural Seedless Raisins

2007 - 2011

(Packed Tons)

	2007-2008	2008-2009	2009-2010	2010-2011	*2011-2012*
August	11,109	13,778	15,767	15,156	12,636
September	10,358	14,897	19,494	10,434	11,561
October	10,127	13,869	10,429	4,828	10,006
November	10,442	5,456	8,087	8,428	10,790
December	10,851	8,335	11,816	10,275	9,574
January	12,667	9,877	12,668	11,313	9,325
February	10,416	6,502	11,088	9,317	8,625
March	10,262	8,441	12,435	11,661	9,066
April	12,433	11,123	12,346	11,706	8,867
May	14,109	8,882	13,664	11,425	10,164
June	14,745	12,244	11,666	12,030	10,005
July	15,022	12,385	12,786	12,625	8,754
TOTAL YEAR	142,541	125,789	152,246	129,198	119,373

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Table 4B

Free Tonnage Export Shipments

(Excluding Canada)

Zante Currant Raisins

2007 - 2011

(Packed Tons)

	2007-2008	2008-2009	2009-2010	2010-2011	*2011-2012*
August	130	208	112	121	84
September	117	291	39	96	92
October	204	214	154	30	102
November	150	270	70	109	89
December	327	58	73	67	29
January	151	40	42	91	25
February	460	234	49	51	58
March	188	45	48	35	69
April	250	162	50	106	64
May	309	96	42	108	78
June	317	63	45	58	97
July	278	90	57	131	118
TOTAL YEAR	2,881	1,771	781	1,003	905

RAC - September 2012

Table 5

Free Tonnage Shipments To Domestic And Canadian Markets

(Including Government)

Natural Seedless Raisins

2007 - 2011

(Packed Tons)

	2007-2008		2008-2009		2009-2010		2010-2011		*2011-2012*	
	Tons	**%**	**Tons**	**%**	**Tons**	**%**	***Tons***	***%***	***Tons***	***%***
August										
Packed	6,713	38	5,479	35	5,701	39	5,673	37	6,445	39
Bulk	11,092	62	10,274	65	8,737	61	9,609	63	10,251	61
TOTAL	**17,805**	100	**15,753**	100	**14,438**	100	**15,282**	100	**16,696**	100
September										
Packed	5,318	36	5,887	37	6,823	39	6,677	39	6,091	37
Bulk	9,618	64	9,844	63	10,591	61	10,420	61	10,395	63
TOTAL	**14,936**	100	**15,731**	100	**17,414**	100	**17,097**	100	**16,486**	100
October										
Packed	7,699	41	7,035	38	6,937	41	6,478	38	6,577	39
Bulk	11,219	59	11,614	62	10,012	59	10,727	62	10,264	61
TOTAL	**18,918**	100	**18,649**	100	**16,949**	100	**17,205**	100	**16,841**	100
November										
Packed	7,388	44	6,208	39	7,944	45	6,509	41	6,665	40
Bulk	9,438	56	9,661	61	9,869	55	9,543	59	10,107	60
TOTAL	**16,826**	100	**15,869**	100	**17,813**	100	**16,052**	100	**16,772**	100
December										
Packed	5,485	42	6,602	44	6,235	42	6,253	39	5,612	38
Bulk	7,632	58	8,437	56	8,755	58	9,971	61	9,014	62
TOTAL	**13,117**	100	**15,039**	100	**14,990**	100	**16,224**	100	**14,626**	100
January										
Packed	6,433	37	5,328	33	5,774	40	5,936	39	5,197	36
Bulk	10,722	63	10,716	67	8,814	60	9,295	61	9,270	64
TOTAL	**17,155**	100	**16,044**	100	**14,588**	100	**15,231**	100	**14,467**	100
February										
Packed	6,256	38	5,914	41	4,021	29	5,264	38	5,097	33
Bulk	10,368	62	8,473	59	9,818	71	8,687	62	10,212	67
TOTAL	**16,624**	100	**14,387**	100	**13,839**	100	**13,951**	100	**15,309**	100
March										
Packed	6,114	38	5,854	35	6,472	37	6,464	38	5,990	36
Bulk	9,983	62	11,017	65	10,807	63	10,502	62	10,574	64
TOTAL	**16,097**	100	**16,871**	100	**17,279**	100	**16,966**	100	**16,564**	100
April										
Packed	5,971	37	5,687	36	5,862	36	5,452	39	4,824	33
Bulk	9,965	63	10,225	64	10,235	64	8,654	61	9,905	67
TOTAL	**15,936**	100	**15,912**	100	**16,097**	100	**14,106**	100	**14,729**	100
May										
Packed	5,448	36	5,558	36	4,673	34	4,867	37	4,188	29
Bulk	9,718	64	9,837	64	9,197	66	8,169	63	10,073	71
TOTAL	**15,166**	100	**15,395**	100	**13,870**	100	**13,036**	100	**14,261**	100
June										
Packed	4,973	36	5,775	34	4,691	32	4,858	37	3,953	31
Bulk	8,967	64	11,070	66	10,081	68	8,299	63	8,947	69
TOTAL	**13,940**	100	**16,845**	100	**14,772**	100	**13,157**	100	**12,900**	100
July										
Packed	6,036	35	5,731	37	5,092	36	4,995	41	4,475	32
Bulk	11,053	65	9,703	63	9,035	64	7,042	59	9,577	68
TOTAL	**17,089**	100	**15,434**	100	**14,127**	100	**12,037**	100	**14,052**	100
TOTAL YEAR										
Packed	73,834	38	71,058	37	70,225	38	69,426	38	65,114	35
Bulk	119,775	62	120,871	63	115,951	62	110,918	62	118,589	65
TOTAL	**193,609**	100	**191,929**	100	**186,176**	100	**180,344**	100	**183,703**	100

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Table 6

Free Tonnage Shipments To All Market Outlets
2004 - 2011
(Sweatbox Tons)

Variety	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	*2011-12*
Natural Seedless								
Domestic & Canada	205,002	195,822	203,889	201,355	200,775	194,879	191,211	196,682
Export Free	112,996	102,632	109,727	148,243	131,587	159,363	136,982	127,808
Total	**317,998**	**298,454**	**313,616**	**349,598**	**332,361**	**354,242**	**328,193**	**324,490**
Dipped Seedless								
Domestic & Canada	6,584	5,527	5,628	4,668	3,192	4,389	5,397	1,876
Export Free	0	8	0	0	0	23	34	184
Total	**6,584**	**5,534**	**5,628**	**4,668**	**3,192**	**4,412**	**5,431**	**2,060**
Golden Seedless								
Domestic & Canada	12,319	12,897	13,505	12,620	12,899	12,632	14,066	13,419
Export Free	4,128	4,218	3,312	5,404	5,832	5,245	6,521	5,828
Total	**16,447**	**17,115**	**16,817**	**18,024**	**18,731**	**17,877**	**20,587**	**19,247**
Zante Currants								
Domestic & Canada	1,920	1,648	1,481	1,717	1,786	1,583	1,307	1,448
Export Free	883	931	1,041	3,222	2,060	895	1,205	1,089
Total	**2,803**	**2,579**	**2,522**	**4,939**	**3,846**	**2,478**	**2,512**	**2,537**
Sultanas								
Domestic & Canada	25	32	255	85	78	83	57	60
Total	**25**	**32**	**255**	**85**	**78**	**83**	**57**	**60**
Muscats								
Domestic & Canada	12	6	4	9	14	0	2	0
Export Free	0	0	0	0	0	0	0	0
Total	**12**	**6**	**4**	**9**	**14**	**0**	**2**	**0**
Monukka Type								
Domestic & Canada	424	137	228	338	376	153	109	126
Export Free	0	1	0	1	1	0	0	0
Total	**424**	**138**	**228**	**339**	**377**	**153**	**109**	**126**
Other Seedless								
Domestic & Canada	1,808	5,023	4,135	5,141	5,408	6,716	9,374	6,283
Export Free	880	375	421	802	942	1,367	1,482	2,659
Total	**2,688**	**5,398**	**4,556**	**5,943**	**6,350**	**8,083**	**10,856**	**8,942**
Other Seedless Sulfured								
Domestic & Canada	243	693	1,110	655	254	462	456	430
Export Free	0	0	0	0	0	23	166	100
Total	**243**	**693**	**1,110**	**655**	**254**	485	**622**	**530**
TOTAL ALL VARIETIES	**347,224**	**329,950**	**344,736**	**384,260**	**365,203**	**387,813**	**368,369**	**357,992**
Government Reserve - Nat'ls	**165**	**0**	**982**	**0**	**0**	0	**0**	**0**
Government Reserve - Zantes	**0**	**0**	**0**	**0**	**0**	0	**0**	**0**

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Table 6A

Free Tonnage Shipments To All Market Outlets
2004 - 2011
(Packed Tons)

Variety	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	*2011-12*
Natural Seedless								
Domestic & Canada	193,680	186,358	188,944	193,609	191,929	186,176	180,344	183,703
Export Free	106,755	97,672	101,684	142,541	125,789	152,246	129,198	119,373
Total	**300,435**	**284,030**	**290,628**	**336,150**	**317,718**	**338,422**	**309,542**	**303,076**
Dipped Seedless								
Domestic & Canada	5,337	5,111	4,673	3,651	3,480	3,629	4,803	1,618
Export Free	0	8	0	0	0	19	30	158
Total	**5,337**	**5,119**	**4,673**	**3,651**	**3,480**	**3,648**	**4,833**	**1,776**
Golden Seedless								
Domestic & Canada	11,242	11,084	12,384	11,263	11,539	11,699	12,614	11,986
Export Free	3,767	3,625	3,037	4,823	5,217	4,858	5,848	5,206
Total	**15,009**	**14,709**	**15,421**	**16,086**	**16,756**	**16,557**	**18,462**	**17,192**
Zante Currants								
Domestic & Canada	1,692	1,403	1,244	1,535	1,536	1,382	1,090	1,205
Export Free	778	792	875	2,881	1,771	781	1,003	905
Total	**2,470**	**2,195**	**2,119**	**4,416**	**3,307**	**2,163**	**2,093**	**2,110**
Sultanas								
Domestic & Canada	7	32	181	42	56	52	37	58
Total	**7**	**32**	**181**	**42**	**56**	**52**	**37**	**58**
Muscats								
Domestic & Canada	10	6	4	5	2	0	2	0
Export Free	0	0	0	0	0	0	0	0
Total	**10**	**6**	**4**	**5**	**2**	**0**	**2**	**0**
Monukka Type								
Domestic & Canada	400	124	208	269	347	126	101	142
Export Free	0	1	0	1	1	0	0	0
Total	**400**	**125**	**208**	**270**	**348**	**126**	**101**	**142**
Other Seedless								
Domestic & Canada	1,303	4,573	3,135	4,944	4,363	5,386	7,237	5,750
Export Free	634	342	319	771	760	1,096	1,144	2,434
Total	**1,937**	**4,915**	**3,454**	**5,715**	**5,123**	**6,482**	**8,381**	**8,184**
Other Seedless Sulfured								
Domestic & Canada	167	495	555	491	406	422	396	450
Export Free	0	0	0	0	0	21	144	105
Total	**167**	**495**	**555**	**491**	**406**	**443**	**540**	**555**
TOTAL ALL VARIETIES	**325,772**	**311,626**	**317,243**	**366,826**	**347,196**	**367,893**	**343,991**	**333,093**
Government Reserve - Nat'ls	**154**	**0**	**923**	**0**	**0**	**0**	**0**	**0**
Government Reserve - Zantes	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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Table 7

Free Tonnage Shipments To Domestic And Canadian Markets
(Including Government)
Natural Seedless Raisins
1996 - 2011
(Packed Tons)

Crop Year	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total
1996-97	16,574	17,574	20,307	16,285	14,092	12,378	13,899	15,420	14,589	14,005	11,885	17,684	184,692
1997-98	16,646	16,654	18,624	15,110	14,508	13,829	11,207	15,126	13,478	12,287	13,586	13,917	174,972
*1998-99	15,620	14,734	19,730	15,400	13,686	14,019	13,751	16,118	11,302	10,850	12,897	11,569	169,676
1999-2000	14,081	13,757	17,721	15,389	12,668	10,260	11,082	14,355	12,299	12,963	13,975	7,775	156,325
2000-01	11,303 **	9,391 **	13,002 **	11,793 **	23,696	20,097	14,028	14,611	15,275	13,249	13,324	14,348	174,117
2001-02	17,192	13,049	18,783	15,541	11,745	15,457	12,655	13,878	14,187	13,815	12,253	16,065	174,620
2002-03	16,163	16,661	17,326	15,181	13,496	14,971	12,147	15,556	14,059	13,661	12,835	14,998	177,054
2003-04	13,761	17,209	18,345	14,976	14,326	14,663	14,965	16,557	14,086	12,819	13,742	14,636	180,085
*2004-05	17,930	17,431	17,644	16,638	16,166	15,088	14,385	17,298	17,717	14,014	15,525	13,844	193,680
2005-06	18,773	17,176	17,600	17,322	14,255	14,502	14,440	17,066	14,914	13,331	16,065	10,914	186,358
2006-07	16,991	16,214	18,942	16,066	13,685	15,136	14,589	16,853	15,759	16,448	12,451	15,810	188,944
2007-08	17,805	14,936	18,918	16,826	13,117	17,155	16,624	16,097	15,936	15,166	13,940	17,089	193,609
2008-09	15,753	15,731	18,649	15,869	15,039	16,044	14,387	16,871	15,912	15,395	16,845	15,436	191,929
2009-10	14,438	17,414	16,949	17,813	14,990	14,588	13,839	17,279	16,097	13,870	14,772	14,127	186,176
*2010-11	15,282	17,097	17,205	16,052	16,224	15,231	13,951	16,966	14,106	13,036	13,157	12,037	180,344
2011-12	16,696	16,486	16,841	16,772	14,626	14,467	15,309	16,564	14,729	14,261	12,900	14,052	183,703
TEN YEAR AVERAGE	16,359	16,635	17,842	16,352	14,592	15,184	14,464	16,711	15,332	14,200	14,223	14,294	186,188

*** No Pool Established**

**** Months shipments under reported and tonnage recorded Dec/Jan.**

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Table 8

Free Tonnage Made Available For Disposition In Commercial Trade Channels
Natural Seedless Raisins
2002 - 2011
(Sweatbox Tons)

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	*2011-12*
Natural Seedless Total Deliveries	388,010 (a)	296,864 (a)	265,262	319,126	282,999	329,288	364,268	298,532	354,878	346,132
Free Tonnage Purchasec	205,668	207,818	265,262	263,287	254,703	279,895	316,913	253,752	354,878	346,132
Reserve Tonnage Purchased (b	76,146	61,186	72,789	31,975	52,689	69,604	35,844	56,798	64	0
Total Tonnage Purchasec	281,814	269,004	338,051	295,262	307,392	349,499	352,757	310,550	354,942	346,132
Packers' August 1 Carryin (c	132,135	129,345	95,003	114,792	111,444	105,430	106,249	126,824	83,143	110,206
Total Disposable Tonnage	413,949	398,349	433,054	410,054	418,836	454,929	459,006	437,374	438,085	456,338
Commercial Shipments	297,640	304,236	317,998	298,454	313,616	349,598	332,362	354,242	328,193	324,490
July 31 Carryout (calculated)	116,309	94,113	115,056	111,600	105,220	105,331	126,645	83,132	109,892	131,848

(a) Includes Diversion Tonnage
(b) Export and 10+10
(c) Packers' Carryin Inventory Report

Table 9

SUPPLY AND DISPOSITION
NATURAL SEEDLESS RAISINS
2002-2011
(Sweatbox Tons)

	2002-03	2003-04	2004-05	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	*2011-2012*
Total Disposable Free Tonnage	413,949	398,349	433,054	410,054	418,836	454,929	459,006	437,374	438,085	456,338
Disposition										
Domestic & Canada	189,160	191,376	205,002	195,822	203,889	201,355	200,775	194,879	191,211	196,682
Export Free	108,480	112,860	112,996	102,632	109,727	148,243	131,587	159,363	136,982	127,808
Total Disposition	297,640	304,236	317,998	298,454	313,616	349,598	332,362	354,242	328,193	324,490
Carryout (Calculated)	116,309	94,113	115,056	111,600	105,220	105,331	126,644	83,132	109,892	131,848
Reserve Tonnage										
Total Available Supply	287,067	221,951	101,358	82,096	77,783	70,257	48,002	56,934	71	2
Released for Export*	19,349	0	0	0	0	0	25,438	11,604	0	0
Other Disposition	267,718	221,951	101,358	82,096	77,783	70,257	22,564	45,330	71	2
Exports										
Free Tonnage	108,480	112,860	112,996	102,632	109,727	148,243	131,587	159,363	136,982	127,808
Reserve Shipments	0	0	0	0	0	0	0	0	0	0
Total Exports	108,480	112,860	112,996	102,632	109,727	148,243	131,587	159,363	136,982	127,808

*** Raisin-Back**

RAC - September 2012

Table 10

Supply And Disposition Of Reserve Pool Tonnage
Natural Seedless Raisins
2004-2011
(Sweatbox Tons)

	2004-2005 Crop Year	2005-2006 Crop Year	2006-2007 Crop Year	2007-2008 Crop Year	2008-2009 Crop Year	2009-2010 Crop Year	2010-2011 Crop Year	*2011-2012 Crop Year*
SUPPLY								
Reserve Tonnage	0	55,839	28,297	49,393	47,355	44,780	0	0
Carry In From Previous Year	101,358	26,257	49,486	20,864	647	12,154	71	2
Total Reserve Supply	101,358	82,096	77,783	70,257	48,002	56,934	71	2
DISPOSITION								
10 & 10**	72,789	31,975	52,689	69,604	10,406	45,194	64	0
Export*	0	0	0	0	25,438	11,604	0	0
Raisin Diversion Program	0	0	0	0	0	0	0	0
Government	165	0	982	0	0	0	0	0
Non-Normal Outlets	0	0	0	0	0	0	0	0
Distillation	0	0	0	0	0	0	0	0
Donations	1,853	635	1,139	6	4	15	3	2
Miscellaneous	294	0	2,109	0	0	50	2	0
Carry Out To Subsequent Year	26,257	49,486	20,864	647	12,154	71	2	0
Total Disposition	101,358	82,096	77,783	70,257	48,002	56,934	71	2

** Includes all Reserve for Free Usage Sales

* Raisin-Back

RAC - September 2012

Table 11

Supply And Disposition Of Reserve Pool Tonnage
Natural Seedless Raisins
2011-2012 Crop Year
(Sweatbox Tons)

SUPPLY		
Reserve Tonnage	**0**	
(based on total deliveries of: 346,132)		
Carry In From Previous Crop Year	**2**	
Total Reserve Supply		**2**
DISPOSITION		
10 & 10	**0**	
67(j)	**0**	
Export	**0**	
Raisin Diversion Program	**0**	
Government/Food Aid	**0**	
Non-Normal Outlets	**0**	
Exemption/Loss	**0**	
Donations	**2**	
Total Disposition		**2**
Carry Out To Subsequent Crop Year		**0**

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Table 12

Reserve Pool Percentages
Natural Seedless Raisins
1997-2011

Crop Year	Preliminary Percentages Free	Preliminary Percentages Reserve	Secretary Established Free	Secretary Established Reserve	Date Established	Basis for Pool Payments Free	Basis for Pool Payments Reserve
1997-98	61	39	66	34	07/01/98	66	34
1998-99	85	15	100	0	01/15/99	100	0
1999-2000	73	27	85	15	06/23/00	85	15
2000-01	35	65	53	47	08/01/01	53	47
2001-02	56	44	63	37	07/19/02	63	37
2002-03	41	59	53	47	04/03/03	53	47
2003-04	65	35	70	30	08/10/04	70	30
2004-05	100	0	100	0	10/05/04	100	0
2005-06	74	26	82.5	17.5	05/23/06	82.5	17.5
2006-07	89.75	10.25	90	10	04/10/07	90	10
2007-08	84.75	15.25	85	15	02/20/08	85	15
2008-09	86.75	13.25	87	13	03/10/09	87	13
2009-10	84.75	15.25	85	15	06/25/10	85	15
2010-11	100	0	100	0	07/19/11	100	0
2011-12	100	0	100	0	08/15/12	100	0

RAC - August 2012

Table 13

Comparison Of Packer Acquisitions By Week
Natural Seedless Raisins
2007-2011
(Sweatbox Tons)

Week of Delivery	2007-2008	2008-2009	2009-2010	2010-2011	*2011-2012*
1		9,858	0	7,041	172
2		63	0	1,362	15
3	60	0	0	1,350	303
4	0	5	47	752	2,383
Comparative 4 Week Total	60	9,926	47	10,505	2,873
5	101	604	90	1,376	22
6	932	873	2,506	1,053	97
7	2,993	3,769	5,368	1,423	492
8	8,280	9,837	9,815	4,459	3,364
9	13,266	13,417	22,195	10,394	9,596
Comparative 5 Week Total	25,572	28,500	39,974	18,705	13,571
10	22,181	18,962	38,094	22,669	12,455
11	24,766	24,319	29,239	30,781	19,225
12	32,053	42,918	32,437	33,332	21,203
13	32,825	28,560	29,838	27,798	22,864
Comparative 4 Week Total	111,825	114,759	129,608	114,580	75,747
14	28,623	30,100	24,054	34,013	23,197
15	26,154	25,770	25,535	28,483	24,999
16	21,650	23,219	12,521	23,320	21,531
17	10,763	8,962	7,559	8,681	10,181
Comparative 4 Week Total	87,190	88,051	69,669	94,497	79,908
18	17,524	14,541	7,373	12,488	16,239
19	11,373	11,542	5,401	10,716	13,478
20	11,561	8,675	5,654	14,013	11,433
21	5,375	1,966	2,002	6,419	10,394
22	2,895	4,370	1,773	5,402	5,485
Comparative 5 Week Total	48,728	41,094	22,203	49,038	57,029
23	4,301	7,905	5,001	4,888	7,273
24	7,818	11,856	4,455	4,461	13,813
25	3,048	3,110	1,800	3,691	5,995
26	3,970	4,633	2,015	4,027	5,645
Comparative 4 Week Total	19,137	27,504	13,271	17,067	32,726
27	3,052	3,666	2,534	2,436	5,055
28	3,322	5,166	2,500	3,384	4,895
29	3,618	2,131	2,594	3,237	6,905
30	2,282	2,473	1,191	4,784	8,647
Comparative 4 Week Total	12,274	13,436	8,819	13,841	25,502

Table 13

Comparison Of Packer Acquisitions By Week
Natural Seedless Raisins
2007-2011
(Sweatbox Tons)

Week of Delivery	2007-2008	2008-2009	2009-2010	2010-2011	*2011-2012*
31	2,700	6,046	1,716	3,695	5,111
32	1,587	2,126	1,833	2,219	11,187
33	2,170	1,378	2,257	3,062	1,302
34	823	8,329	1,813	2,428	2,431
Comparative 4 Week Total	7,280	17,879	7,619	11,404	20,031
35	561	988	1,373	1,843	1,892
36	1,407	203	419	2,033	4,010
37	1,785	735	769	1,348	2,084
38	1,712	2,141	913	1,495	2,961
39	388	1,605	307	1,081	1,433
Comparative 5 Week Total	5,853	5,672	3,781	7,800	12,380
40	1,927	1,530	258	1,826	1,882
41	1,510	769	1,201	1,549	1,919
42	1,101	946	743	1,238	1,493
43	986	1,129	275	1,536	1,738
Comparative 4 Week Total	5,524	4,374	2,477	6,149	7,032
44	566	463	230	1,058	1,758
45	993	300	634	1,223	1,833
46	495	376	(25)	428	1,291
47	791	478	48	439	1,486
Comparative 4 Week Total	2,845	1,617	887	3,148	6,368
48	665	943	143	1,776	2,826
49	387	1,736	0	3,358	3,650
50	613	1,845	2	1,445	137
51	558	3,114	5	1,353	535
52	778	3,818	27	212	5,817
Comparative 5 Week Total	3,001	11,456	177	8,144	12,965
YEARLY TOTAL	329,288	364,268	298,532	354,878	346,132

RAC - September 2012

Table 14

Free Tonnage Supply And Demand Situation
Natural Seedless Raisins
1997-2011
(Sweatbox Tons)

	SUPPLY						SHIPMENTS			
Crop Year	Acquired	Percent Free	Free Tonnage	Carryin	Purchased From Reserve	Total Free Supply	Canada and Domestic	Export (Free)	Total Disposition	Computed Carryout
1997-98	382,448	66.0	252,416	92,769	63,104	408,289	185,745	124,349	310,094	98,195
1998-99	240,469	100.0	240,469	98,291	59,844	398,604	181,666	115,234	296,900	101,704
1999-2000	299,910	85.0	254,923	101,946	3,586	360,455	166,127	97,342	263,469	96,986
2000-01	432,616	53.0	229,287	97,109	84,867	411,263	185,429	109,598	295,027	116,236
2001-02	377,328	63.0	237,716	116,131	76,827	430,674	186,361	112,272	298,633	132,041
2002-03	388,010	53.0	205,668 **	132,135	76,146	413,949	189,160	108,480	297,640	116,309
2003-04	296,864	70.0	207,818 **	129,345	61,186	398,349	191,376	112,860	304,236	94,113
2004-05	265,262	100.0	265,262	95,003	72,789	433,054	205,002	112,996	317,998	115,056
2005-06	319,126	82.5	263,287 **	114,792	31,975	410,054	195,822	102,632	298,454	111,600
2006-07	282,999	90.0	254,703 **	111,444	52,689	418,836	203,889 ***	109,727	313,616	105,220
2007-08	329,288	85.0	279,895	105,430	69,604	454,929	201,355 ***	148,243	349,598	105,331
2008-09	364,268	87.0	316,913	106,249	35,844	459,006	200,775 ***	131,587	332,362	126,644
2009-10	298,532	85.0	253,752	126,824	56,798	437,374	194,879 ***	159,363	354,242	83,132
2010-11	354,878	100.0	354,878	83,143	64	438,085	191,211 ***	136,982	328,193	109,892
2011-12	346,132	100.0	346,132	110,206	0	456,338	196,682 ***	127,808	324,490	131,848
TEN YEAR AVERAGE										
	324,536	84.7 *	274,831	111,457	45,709	431,997	197,015	125,068	322,083	109,914

* Percentage is a weighted average
** Adjusted for exempt tonnage
***Includes Government Free

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Table 15

Calculated Free Tonnage Disappearance
Natural Seedless Raisins
2002-2011
(Sweatbox Tons)

Crop Year	Reported Beginning Physical Inventory	Free Tonnage	Reported Ending Physical Inventory	Free Tonnage Disappearance	Handler Reported Shipments (Packed Tons)	Calculated Shrink (a)
2002-03	132,135	281,814	116,465	297,484	278,591	6.35%
2003-04	129,345	269,004	95,003	303,346	286,286	5.62%
2004-05	95,003	338,051	114,792	318,262	300,435	5.60%
2005-06	114,792	295,262	111,444	298,610	284,030	4.88%
2006-07	111,444	307,392	105,430	313,406	290,628	7.27%
2007-08	105,430	349,499	106,249	348,680	336,150	3.59%
2008-09	106,249	352,757	126,824	332,182	317,718	4.35%
2009-10	126,824	310,550	83,143	354,232	338,422	4.46%
2010-11	83,143	354,942	110,206	327,878	309,542	5.59%
2011-12	110,206	346,132	132,061	324,277	303,076	6.54%

(a) The calculated shrinkage was determined by dividing Handler Reported Shipments by Free Tonnage Disappearance and deducting the result from 100%.

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Table 16

Natural Seedless Raisins Diversion Program
Historical Data
2001-2011

RDP Year	Number of Certificates Issued	Number of Acres	Number of Pounds	Average Tons/Acre
Combined--Diverted and Removed:				
2011	0	0	0	0
2010	0	0	0	0
2009	0	0	0	0
2008	0	0	0	0
2007	0	0	0	0
2006	0	0	0	0
2005	0	0	0	0
2004	0	0	0	0
2003	236	8,198.20	30,598,695	1.87
2002	775	26,739.20	101,680,000	1.90
2001	932	38,111.00	178,152,627	2.34
		73,048.40	310,431,322	2.12
Diverted:				
2011	0	0	0	0
2010	0	0	0	0
2009	0	0	0	0
2008	0	0	0	0
2007	0	0	0	0
2006	0	0	0	0
2005	0	0	0	0
2004	0	0	0	0
2003	0	0	0	0
2002	573	20,907.00	79,150,000	1.89
2001	815	35,494.00	166,741,306	2.35
		56,401.00	245,891,306	2.18
Removed:				
2011	0	0	0	0
2010	0	0	0	0
2009	0	0	0	0
2008	0	0	0	0
2007	0	0	0	0
2006	0	0	0	0
2005	0	0	0	0
2004	0	0	0	0
2003	236	8,198.20	30,598,695	1.87
2002	202	5,832.20	22,530,000	1.93
2001	117	2,617.00	11,411,321	2.18
		16,647.40	64,540,016	1.94

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Antioxidants

1. "A Randomized, Un-blinded, Single Research Site, Comparator Study of Raisins Versus Alternative Snacks on Cardiovascular Risk Factors In Generally Healthy Subjects"

Harold Bays MD, FACP, FACE, FNLA

This was a randomized, un-blinded, single research site, comparator study of raisins versus alternative snacks on cardiovascular risk factors in generally healthy subjects. Study participants were instructed to orally consume one prepackaged serving of raisins (90 kcal/serving), or one prepackaged comparator snack (100 kcal/serving) orally administered three times daily before breakfast, lunch, and dinner with 8 oz. of non-caloric fluid (preferably water) over 12 weeks.

Hypothesis of this study was that routine raisin consumption over 12 weeks would improve cardiovascular risk factors compared to generally equal calorie alternative snacks.

The objective of this study was to compare the effects of raisins three times per day versus alternative snacks three times per day on cardiovascular risk factors in generally healthy subjects.

Primary objective/endpoints were change at week 12 for raisin versus control snacks regarding:

- Fasting plasma glucose levels
- Plasma glucose levels 2 hours after administration of 75 g oral glucose
- Body weight

Secondary objective/endpoints were change at week 12 for raisin versus control snacks regarding:

- Hemoglobin A1c
- Blood pressure (systolic and diastolic)
- Body mass index

Other endpoints included laboratory of special interest

- Potassium
- Alanine aminotransferase (ALT)
- Aspartate aminotransferase (AST)
- Alkaline phosphatase (Alk Phos)
- Fasting serum insulin (Insulin was not an apriori "endpoint of special interest" in the protocol. It was added at time of study analysis due to its potential relevance to other measured metabolic parameters.)

Conclusion:
Overall, this study supports regular consumption of raisins as reducing the important cardiovascular risk factors of postprandial plasma glucose and blood pressure, which may help account for the favorable effects of grapes (and thus potentially raisins) on possibly reducing the risk for cardiovascular disease.

2. "Raisin Effects on Biomarkers of Coronary Heart Disease in Elderly Men and Women"

Maria Luz Fernandez, PhD, University of Connecticut

A randomized, controlled study with 17 men and women aged 50-70 years were involved in the study. They were encouraged to walk or to walk and eat 1 cup of raisins per day or just eat 1 cup of raisins per day. The intervention improved the lipid risk profile for all groups by resulting in a reduction in both total cholesterol and LDL-C. The authors suggested that the increase in fiber intake was a likely contributor to the reduction in LDL-C for RAISIN and RAISIN + WALK. The reduction in blood pressure for RAISIN and RAISIN + WALK may have resulted from antioxidant effects of the raisin polyphenols. In conclusion, risk factors for CVD were affected significantly by consuming raisins or increasing steps walked. Blood pressure, plasma total cholesterol and LDL-C were significantly decreased by all interventions, while walking lowered plasma TG. Raisins lowered the risk for inflammatory damage by decreasing one of the markers of inflammation associated with diabetes and coronary heart disease (tumor necrosis factor – alpha -TNF-α.).

3. "Raisins, Cyclo-oxygenase – 2 and Cancer Prevention"

Andrew J. Dannenberg, M.D., NewYork-Presbyterian Hospital/ Weill Medical College of Cornell University, New York, NY.

One of the antioxidant compounds in raisins and some other fruits and vegetables is catechin. When catechins were fed to tumor-prone mice by the noted cancer researcher Dr. Andrew Dannenberg and his colleagues, there was a 70 percent reduction in the number of tumors compared to control animals (not fed additional catechin). This type of study adds to the body of evidence linking phytochemical components of fruits and vegetables to reduction in the risk of colorectal cancer, colorectal adenomas and other gastrointestinal tumors.

4. "Antioxidant Capacity and Cholesterol Concentration in Human Subjects"

Carl L. Keen, Ph.D., Professor and Chair, Department of Nutrition, University of California – Davis, Davis, California.

Subjects eating raisins (4 servings) daily for 4 weeks increased the plasma antioxidant capacity. This in turn decreased the level of circulating oxidized low-density lipoprotein (LDL), so-called bad cholesterol, in subjects. High levels of LDL cholesterol are associated with increased cardiovascular disease. Oxidized LDL is especially problematic because the oxidized particles in the bloodstream are more likely to add to plaque on the artery wall. These data clearly show raisins are an important part of a diet that encourages 8 to 13 servings of fruit and vegetables loaded with important phytochemicals and antioxidants.

5. "Value of Raisins for Reduction of Oxidative Stress, Endothelial Dysfunction, and Inflammation in Obesity"

Janet Walberg Rankin, Ph.D., Professor in Human Nutrition, Foods, and Exercise, Virginia Tech., Blacksburg, Virginia.

Research expert on oxidative stress and disease, Janet Walberg Rankin, studied the effect of raisins with their important antioxidant contribution on oxidative stress and inflammation in overweight subjects. It is well known that oxidative stress triggers an inflammatory response that increases disease risk. Together with graduate student Mary Whitlock, Dr. Rankin looked at whether the modest, easily accessible raisin can benefit obese individuals. They showed lowered levels of markers of inflammation, C-reactive peptide (CRP) and interleukin-6 (IL-6). These findings are important because those eating high fat meals or who are obese have elevated levels of CRP and IL-6. High levels of these components adversely affect proper blood vessel functioning. Thus, those with high oxidative stress tend to have blood vessels that do not appropriately dilate and relax. Foods, such as raisins, that are good sources of antioxidants, especially flavonoids and phenolics, can be helpful in fighting oxidation stress and improving blood vessel function.

6. "Raisin effects on in vitro demineralization of teeth"

Clifton Carey, PhD, Director of Administration, American Dental Association – Paffenbarger Research Center

Strong evidence exists that food particles retained on the teeth will lead to Demineralization of the tooth enamel and dental caries. (caries) (Kashket et al, 1996). This led to the idea that foods which are perceived as 'sticky' will be more cariogenic than non-sticky snack foods. Raisins have been perceived by the general public and by pediatric dentists as the ninth stickiest food out of a list of twenty-one popular snacks. Despite this, there is no evidence that raisins contribute to the demineralization of teeth. In fact measurement of food that is on the tooth 5 minutes after swallowing showed that foods that are less soluble in oral fluids are retained for longer times. Specifically, raisins although perceived as quite sticky, they are easily cleared from the oral cavity. These observations suggest that raisins may not contribute to tooth demineralization significantly because the sugars are removed from the dentition before the plaque mass has the opportunity to generate sufficient acid to lower the pH below 5.5. There is also research that shows that raisins contain compounds that inhibit the *in vitro* growth of *S. mutans,* thus making raisins less cariogenic than other foods. However, the *in vitro* research with 10% raisin juice showed that it had the potential to demineralize tooth enamel but that this was less than orange juice with its citric acid.

7. "Raisins as a Functional Food for Oral Health"

Christine D. Wu, M.S., Ph.D., Professor, Department of Periodontics, University of Illinois, College of Dentistry, Chicago, Illinois.

Raisins contain compounds including oleanolic acid that inhibit *in vitro* growth of *Streptococcus mutans*, one of the major bacteria in the mouth responsible for tooth decay. Oleanolic acid and other compounds in raisins also inhibit organisms associated with periodontal disease, including *Porphyromonas gingivalis* and *Fusobacterium nucleatum*. Oleanolic acid is effective in suppressing *in vitro* plaque formation by *Streptococcus mutans*. Prevention of plaque formation on the tooth surface is critical both for preventing tooth decay and promoting healthy gums.

Food Preservation

8. "Phenolic Content, Antioxidant Activity and Antimicrobial Properties of Raisins in Food Systems"

Luis Cisneros-Zevallos, Ph.D., Assistant Professor, Department of Horticultural Sciences, Texas A&M University, College Station, Texas.

Raisins have a considerable concentration of phenolic compounds. This analysis showed that they were quinic and gallic acid, chlorogenic and caffeic acids, catechin, and epicatechin. Golden raisins have more of many of these compounds because the antioxidant effect of the sulfite used in golden raisins inhibits the loss of these compounds. Raisin juice extracts and concentrates also have significantly increased numbers of these compounds, so they have the potential to reduce the growth of harmful microorganisms and prevent browning of cut produce. According to studies conducted by Luis Cisneros-Zevallos and his team at Texas A&M, raisin extracts were shown to reduce the growth of known food pathogens such as *Listeria monocytogenes* and *Escherichia coli* 0157:H7 in a variety of model food systems. This has great importance to food safety and to the produce industry as a non-food additive solution to help extend the shelf life of food and reduce food-borne disease.

9. "Inhibition of Lipid Oxidation by Raisin Paste in Cooked Ground Meat"

Daren Cornforth, Ph.D., Professor, Nutrition & Food Sciences, Utah State University, Logan, Utah.

Raisins are recognized as a good source of dietary antioxidants. Adding raisin paste or extract to cooked ground beef or pork at just 1% to 2% of the weight improved its flavor after storage due to inhibition of rancidity by the antioxidants. Addition of the raisin extract to chicken at the same levels was also effective but did cause the meat to darken. In all cases the addition of the small amount of raisins did not affect the flavor of the meat.

10. "Evaluation of the Potential Anti-Microbial Properties of Raisins and Their Application in Food Safety and Preservation"

Mark A. Daeschel, Ph.D., Professor, Food Microbiology and Safety, Oregon State University, Corvallis, Oregon.

Pathogenic bacteria, including *Escherichia coli 0157:H7, Staphylococcus aureus* and *Listeria monocytogenes,* were inhibited in jerky systems containing 25% or 50% raisins. Raisins were shown to have the same preservative properties as sodium nitrite in meat systems. Raisins' innate combination of antioxidants, sugar and acids were shown to be as effective as the sodium nitrite in inhibiting organisms that cause food- borne disease and in maintaining food safety. This is good news because producers of jerky, sausages, hot dogs and other cured meats may be able to reduce or eliminate the use of nitrite additives.

Use of raisins to replace sodium nitrite in cured meats has many health benefits. First, the nitrite may form cancer-causing nitrosamines during digestion. Second, unlike the sodium nitrite, raisins

add no sodium. This is important for those on sodium-restricted diets. Third, addition of raisins may improve the overall nutritional profile of cured meats, such as jerky, since the raisins provide antioxidants and make it possible to produce a palatable product that is lower in fat.

Fiber

11. "Raisin Dietary Fiber: Composition and Characteristics"

Mary Ellen Camire, Ph.D., Professor, Department of Food Science and Human Nutrition, University of Maine, Orono, Maine.

Dietary fiber and other components may reduce the risk of heart disease and cancer by binding bile acids and causing their elimination from the body. Camire's study confirms that eating fibrous foods, such as raisins, caused the elimination of bile acids. This in turn stimulates the body to replace the excreted bile acids using its own cholesterol, thus potentially lowering serum cholesterol and the risk of coronary heart disease. Furthermore, bile acids that are bound by fibers such as those in raisins will not be metabolized in the gut to a more toxic form that can cause harmful changes on the colonic wall, and this may potentially reduce cancer risk.

12. "Raisins as a Source of Inulin"

Medallion Labs, Minneapolis, Minnesota.

California raisins are a good source of inulin, a naturally occurring fiber-like carbohydrate that helps keep the colon healthy. Independent laboratory analysis by Medallion Labs, a laboratory known for their analytical work for nutrition labeling in the U.S., showed that a standard 1/4-cup serving of California raisins contains 1.5 grams of inulin. Recommended daily intake levels of inulin have yet to be established. However, inulin is one of the soluble fibers. Health benefits of inulin are the subject of active research and new functions are being documented. Some of these include its effects on cholesterol levels and gut health. Its role as a prebiotic has received much attention because prebiotics are important to support immune function both in the gut and in the body.

13. "Beneficial Effects of Raisins on Colonic Function with Possible Implications for the Prevention of Colon Cancer"

Gene A. Spiller, Ph.D., Head, Sphera Foundation and Health Research Studies Center, Los Altos, California.

The combination of dietary fiber and tartaric acid in sun-dried raisins plays an important role in colon function and health. The study was designed to test the hypothesis that eating 2 to 4 servings of raisins per day may improve colonic health. Research by Dr. Spiller found a positive correlation between consuming sun-dried raisins and a reduction in some colon cancer risk factors. For example, raisins increased fecal weight and caused material to move through the colon faster (called faster transit time). Increased transit time and increased fecal weight is important not only to have a properly functioning gastrointestinal tract and to reduce constipation and

hemorrhoids, it also means that any toxic materials that might be in the diet or produced by metabolism in the gut will have little time to adversely affect the colon wall. Raisins reduced the alkalinity in the colon. Both the faster transit and lowered pH are associated with reduced colon cancer risk. The authors concluded that 2 servings of raisins per day caused moderate but beneficial changes in colon function.

Nutrient Composition

14. "The Impact of Pre-exercise Snacks on Exercise Intensity, Stress, and Fatigue in Children"

Debra R. Keast, PhD; Carol E. O'Neil, PhD, MPH, RD; Julie M. Jones, PhD, CNS, LN

Objective: This study examined the association of dried fruit consumption with nutrient intake, diet quality, and anthropometric indicators of overweight/obesity.

Design: Analyses of dietary and anthropometric data collected from adult (19+ years) participants (n=13,292) of the 1999-2004 National Health and Nutrition Examination Survey were conducted. Dried fruit consumers were defined as those consuming amounts ≥⅛ cup-equivalent fruit/day and identified using 24-hour recalls. Diet quality was measured using the Healthy Eating Index-2005 (HEI-2005). Covariate-adjusted means, standard errors, prevalence rates and odds ratios were determined to conduct statistical tests for differences between dried fruit consumers and non-consumers.

Results: Seven percent of the population consumed dried fruit. Adult shortfall nutrients for which there were mean intake differences ($p<0.01$) between consumers and non-consumers were: fiber (+6.6 g/d), vitamin A (+173µg RAE/d), vitamin E (+1.5 mg AT/d), vitamin C (+20 mg/d), calcium (+103 mg/d), magnesium (+72 mg/d), and potassium (+432 mg/d). Dried fruit consumers had improved MyPyramid food intake, including lower SoFAAS intake, and a higher SoFAAS score (11.1±0.2 vs 8.2±0.1) than non-consumers. The total HEI-2005 score was significantly higher ($p<0.01$) in consumers (59.3±0.5) than non-consumers (49.4±0.3). Covariate-adjusted weight (78.2±0.6 kg vs 80.7±0.3 kg), body mass index (27.1±0.2 vs 28.1±0.2), and waist circumference (94.0±0.5 vs 96.5±0.2) were lower ($p<0.01$) in consumers than non-consumers, respectively.

Conclusions: Dried fruit consumption was associated with improved nutrient intakes, a higher overall diet quality score, and lower body weight/adiposity measures.

Glycemic Effects, Sustainable Energy and Healthy Snacks

15. "Effects of Carbohydrate Supplementation Form on Gastrointestinal Tolerance and Running Performance"

Brandon Too, Sarah Cicai, Kali Hockett, Elizabeth Applegate, Brian A. Davis and Gretchen A. Casazza

Purpose: We examined the effects of raisins and sport chews on running performance and gastrointestinal (GI) tolerance.

Methods: This study recruited 11 competitive male (29.3 ± 2.4 yrs) endurance runners and triathletes to complete an 80-min sub-maximal (75% VO2peak) running bout followed immediately by a 5K time trial and a 10K time trial 24 hours later. Subjects ingested 3 randomized treatments (raisins, sport chews, and water only) with each treatment separated by 7 days. Heart rate (HR), respiratory exchange ratio (RER), blood glucose, lactate, free fatty acids (FFA), glycerol, insulin, electrolytes and creatine kinase, GI symptoms and rating of perceived exertion (RPE) were recorded every 20 minutes during the sub-maximal exercise test and at the end of the 5K. We also measured whole body muscle soreness and fatigue and mood disturbance via questionnaires.

Results: VO2, HR, body weight changes, muscle soreness and fatigue, total mood disturbance and RPE during the submaximal exercise bout did not differ due to treatment. However, RER was highest during the sport chews treatment, followed by the raisins and water was the lowest (0.92 ± 0.01, 0.91 ± 0.01, 0.89 ± 0.01 for raisin, chews and water respectively). FFA and glycerol were higher with water than both CHO treatments. Blood glucose was higher for both carbohydrate treatments compared to water. Plasma creatine kinase was higher for all exercise time points with raisins versus chews and water. Time to complete the 5K time trial was faster for both carbohydrate treatments (20.6 ± .8, 20.7 ± .8, 21.6 ± .8 min for raisin, chews and water respectively). GI disturbance was mild (less than 1 out of 6) for all treatments with only belching higher in both CHO treatments compared to water.

Conclusion: Both the raisins and sport chews maintained high blood glucose levels and improved running performance compared to water only. Running performance between the raisins and sport chews were similar and their GI tolerance was good. Raisins provided a good, natural carbohydrate source that had similar physiological and performance benefits as a commercially available product.

16. "The Impact of Pre-exercise Snacks on Exercise Intensity, Stress, and Fatigue in Children"

Jennifer M. Sacheck, Tamar Kafka, Helen Rasmussen, Jeffrey B. Blumberg, and Christina D. Economos

Purpose: Few studies have examined how the composition of snacks affects athletic performance in children. We investigated whether the macronutrient and flavonoid content of 3 pre-exercise

snacks differentially affected exercise intensity, stress, and postgame fatigue in young soccer players.

Methods: At 1 h prior to a 50-min soccer game, 115 children (9.1 ± 0.9 y) were randomly assigned to consume 1 of 3 isocaloric snacks: 1) nutrient dense/high flavonoid (HF) raisin/nut bar; 2) low flavonoid (LF) peanut butter graham bar; or 3) low flavonoid/high sugar (LF/HS) rice cereal bar. Blood glucose and salivary cortisol and IgA were measured before consuming the snack and immediately following the game. Game exercise intensity was measured by accelerometry. Self-administered questionnaires were used to assess diet quality and physical and mental fatigue after the game.

Results: The children spent approximately 33% of the game in moderate to vigorous activity and 49% of the game in sedentary activity. The snack consumed was not related to exercise intensity. Mean post-exercise blood glucose ($P<0.001$) and cortisol ($P<0.05$) increased and IgA levels decreased ($P<0.001$) from pre-game values. The pre-exercise snack did not predict the post-exercise outcome for any of these parameters after controlling for pre-exercise values of the biomarkers, age, gender, BMI, exercise intensity, game-time water consumption, and diet quality. Children who reported symptoms of fatigue were more likely to have consumed the LF/HS snack ($P<0.05$).

Conclusion: The pre-exercise snacks formulated for this study did not affect blood sugar or salivary biomarkers of stress following a soccer game in young children. The nutrient content of the single snack did not differentially influence these biomarkers or the exercise intensity; however subjective feelings of fatigue may be associated with low flavonoid/high sugar snacks. Future investigations are warranted to further explore the effects of pre-exercise snacks on exercise, performance, stress and fatigue in children.

17."Glycemic Index in the Management of Type 2 Diabetes Mellitus"

Carla Miller, PhD, RD, Ohio State University

The glycemic index of the diet decreased following a 9-week intervention in which 109 diabetics were instructed to increase their intake of fruit and dried fruit, total dietary fiber (including soluble and insoluble fiber) and the percentages of energy from protein and total fat (including saturated and monounsaturated fat) improved. IN addition to a changed GI of the diet, there was a significant reduction in body weight and body mass index (weight (kg)/height (m2)) in both men and women and a significant reduction in waist circumference in men. More fruit including raisins and other dried fruit was consumed following the intervention, which is consistent with the dietary pattern recommended in the Dietary Guidelines 2005. These studies show the importance of fruit, including dried fruit, and dietary fiber in the diet of diabetics. Thus, a carbohydrate-controlled portion of raisins can readily be incorporated into a well-constructed diabetic diet.

18. "Determination of the Glycemic and Insulinemic Responses to Raisins and the Application of Raisins as a Pre-exercise Snack for Persons with Impaired Glucose Tolerance"

Craig Mattern, Assistant Professor, State University of New York at Brockport

Raisins fed as a pre-exercise food to 22 exercisers (approximately half with normal and abnormal glucose tolerance) resulted in similar increases in blood glucose to those observed with a popular energy bar. These observed increases in blood glucose for raisins and energy bar were less than a standardized glucodex solution. The blood insulin response to the pre-exercise meal with raisins, especially in a sedentary population, produced statistically lower insulin values than the standardized glucose solution or the energy bar. All three test substances including Raisins resulted in similar mobilization of free fatty acids from adipose tissue during exercise. Thus, raisins resulted in a similar glucose response during exercise when compared to an energy bar and were less than the standardized glucose solution. The good news is that the insulin responses to raisin ingestion prior to, and in the early phases of exercise, were more favorable than those observed with the energy bar. Thus, raisins can be an excellent food for use by exercisers to help deliver the right kind of carbohydrates.

19. "Determination of the Glycemic and Insulinemic Indexes of Raisins in Three Populations"

Steve Hertzler, Ph.D., Assistant Professor of Nutrition, The Ohio State University, Columbus, Ohio.

The glycemic index (G.I.) and insulin index (I.I.) of raisins was determined on three different populations. In 10 sedentary adults, the G.I. of raisins was determined to be an average of 49.4. A nearly identical G.I. value for raisins was found for 10 prediabetic individuals. In the 11 endurance athletes, the G.I. of raisins was 62.3. As expected, the highest insulin index was found in prediabetic subjects (I.I. = 54.4) and the lowest was found in sedentary subjects (I.I. = 47.3). While the I.I. for athletes was 51.9, the overall insulin excursion in trained athletes was not nearly as great, showing the effects of training on insulin sensitivity and glucose utilization. Interestingly, California raisins in this study came in as a moderate glycemic food, which is different from the 'high' classification they are given in published tables. Data for published tables have not been collected on California raisins, and the population studied is not from the United States.

20. "Raisin Consumption and Exercise Performance of Endurance Athletes"

Mark Kern, Ph.D., Department of Exercise and Nutritional Sciences, University of California – San Diego, San Diego, California.

Raisins were shown to be a good alternative to sports gels in a study conducted with endurance athletes under two different conditions. In studies by Mark Kern, San Diego State professor and author of the CRC Desk Reference on Sports Nutrition (2005, CRC Press), endurance-trained cyclists (4 males and 4 females) completed two feeding-performance trials where changes in metabolism and cycling performance were compared after consumption of raisins (a moderate to low glycemic index food) versus a commercial sports gel (a high glycemic index food). There were no differences in performance in the 45 minute cycling trial (at 75% VO2max). No gastrointestinal

discomfort was reported with either the gel or raisins. Measures of metabolic substrates after exercise were the same with both the sports gel and raisins except there were more free fatty acids after the pre-exercise ingestion of raisins. This increase in the free fatty acids indicates that raisins subtly, but favorably, improved metabolism. The authors concluded that raisins have similar performance effects to commercial sports gel products, but raisins are a better alternative since they provide more micronutrients, an acid-neutralizing load to the kidneys and are a more cost-effective and convenient food for use during exercise.

21. "The Effects of a Raisin-Peanut Pre-Event Meal on Indices of Energy and Fatigue in Young, Trained Soccer Players (10-12 Years of Age) Playing a Standard Game"

Gene A. Spiller, Ph.D., Head, Sphera Foundation and Health Research and Studies Center, Los Altos, California.

Feeding raisins along with peanuts and water to 10 to12 year old children prior to a soccer game resulted in lower increases in blood glucose and insulin than a snack of a white bagel and lemonade. This is important because it means a more steady fuel supply to the exercising muscle of the young players. Lower insulin levels are advantageous because high levels of circulating insulin can promote the laying down of fat and may lead to insulin resistance, a concern among U.S. children today, where rates of obesity and type-2 diabetes are increasing dramatically.

Satiety

22. "The Effects of a Pre-Meal Raisin Snack on Satiety and Food Intake in Children"

Dr. G. Harvey Anderson, Professor, Nutritional Sciences and Physiology. Department of Nutritional Sciences, University of Toronto.

Three experiments were conducted to determine how raisin snacks influences appetite and calorie intake in 8-11 year old children.

First Experiment

Children were asked to visit the lab for three times and during each visit they were asked to eat until comfortably full one of three snacks: (1) raisins, (2) grapes or (3) a mix of almonds with raisins. In a half an hour, a lunch meal with pizza was provided to kids and again they were asked to eat it until they felt comfortably full. The results of this experiment indicated that after the raisin snack, kids consumed about 21% less pizza compared with other snacks. The total calories received from the snack and lunch meal were lower after raisins compared to other snacks.

Second Experiment

The equicaloric (150 kcal) snacks were provided to children and food intake was measured with a pizza meal in 30 min, similarly as in the first experiment. When total calories consumed were calculated after the snack and pizza meal, the calories after the snack with raisins were similar to those after just water, while other snacks led to higher calorie intake when compared with water. It was concluded that raisins was the only snack that does not increase calorie intake when provided before a lunch meal.

Third Experiment

All children received the same breakfast (skim milk, cereals and orange juice), morning snack (medium apple) and the lunch (turkey sandwich with a cup of 2% milk). Then in the afternoon (between 3:30 and 4 pm in the lab) they ate, until comfortably full, one of the four after-school snacks: (1) raisins, (2) grapes, (3) potato chips and (4) chocolate chip cookies. The results of this experiment demonstrated that calorie intake after raisins was the lowest compared to other snacks. Thus, children consumed about 1.5 times more calories with grapes or potato chips, and about twice more calories with cookies.

Conclusion

The results of this project indicate that raisins compared to other popular snacks reduce appetite and provide the lowest energy intake.

FY 2011-2012

- Breeding rootstocks resistant to aggressive root-knot nematodes
  Principle Investigator: Peter Cousins
- Development of improved raisin grapes for mechanical harvest including types resistant to powdery mildew
  Principle Investigator: David Ramming
- Node position, shoot emergence, and yield components of cane-pruned raisin grapes
  Principle Investigator: Matthew Fidelibus
- Advancing maturity of raisin cultivars using potassium sprays applied just prior or during the ripening phase
  Principle Investigator: William Peacock

FY 2010-2011

- Advancing maturity of raisin cultivars using potassium sprays applied just prior or during the ripening phase, by Bill Peacock
- Sustainable Controls for Vine Mealybug – 2010, by Kent Daane
- Crop yield and economics of San Joaquin Valley vineyards under alternative weed management strategies, by Anil Shrestha
- Identifying and correlating populations to fruit damage in raisin production systems, by Stephen Vasquez
- Node position, shoot emergence, and yield components of cane-pruned raisin grapes, by Matthew Fidelibus
- Breeding Rootstocks Resistant to Aggressive Root-Knot Nematodes, by Peter Cousins
- Development of improved raisin grapes for mechanical harvest including types resistant to powdery mildew, by David Ramming

FY 2009-2010

- Breeding Rootstocks Resistant to Aggressive Root-Knot Nematodes, by Peter Cousins
- Advancing maturity of raisin cultivars using potassium sprays applied to fruit just prior or during the ripening phase, by Bill Peacock
- Development of improved raisin grapes for mechanical harvest including types resistant to powdery mildew, by David Ramming
- Sustainable Controls for Vine Mealybug, by Kent Daane
- Movento, Much More Than an Insect Growth Regulator, by M. McKenry
- Identifying raisin moth damage in raisin production systems, by Stephan Vasquez
- Evaluation of abscission agents for grapes, by Matthew Fidelibus

FY 2008-2009

- Evaluation of novel abscission agents to facilitate mechanical harvesting of raisin grapes, by Matthew Fidelibus
- Grapevine Cultivar and Drying Method Effects on Raisin Yield and Quality, by Matthew Fidelibus and Hildegarde Heymann
- Development of improved raisin grapes for mechanical harvest including types resistant to powdery mildew, by David Ramming
- Breeding Rootstocks Resistant to Aggressive Root-Knot Nematodes, by Peter Cousins
- Spider mite management, by N. Mills
- Sustainable Controls for Vine Mealybug: Mating Disruption, by Kent Daane
- Sustainable Controls for Vine Mealybug: Biological Control, by Kent Daane

FY 2007-2008

- Water use of Thompson Seedless grapevines growing in a weighing lysimeter and trained to an overhead trellis system used for dried on the vine (DOV) raisin production, by Larry Williams
- Evaluation of novel abscission agents to facilitate mechanical harvesting of raisin grapes, by Matthew Fidelibus
- Grapevine cultivar and drying method effects on raisin yield and quality, by David Ramming
- Development, Testing and Introduction of Grape Rootstocks with Broad and Durable Nematode Resistance, by Howard Ferris and M. Andrew Walker
- Breeding Rootstocks Resistant to Aggressive Root-Knot Nematodes, by Peter Cousins
- Sustainable Controls for Vine Mealybug: Mating Disruption, by Kent Daane

FY 2006-2007

- Cost of Feasibility of Mechanically Harvested Continuous Tray Dried Raisins, by Stephan Vasquez
- Overhead Arbor Trellis Systems: Canopy Structure and Function in Relation to Irrigation Requirements, by Matthew Fidelibus, Lawrence Schwanki, and Stephan Vasquez
- Evaluation of novel abscission agents to facilitate mechanical harvesting of raisin grapes, by Matthew Fidelibus and Carlos Crisosto
- Development of improved raisin grapes for mechanical harvest including types resistant to powdery mildew, by David Ramming
- Sustainable Controls for Vine Mealybug: Mating Disruption, by Kent Daane and Walt Bentley
- Development, Testing and Introduction of Grape Rootstocks with Broad and Durable Nematode Resistance, by Howard Ferris and M. Andrew Walker
- Grapevine Cultivar and Drying Method Effects on Raisin Yield and Quality, by Matthew Fidelibus and Hildegarde Heymann
- Breeding Rootstocks Resistant to Aggressive Root-Knot Nematodes, by Peter Cousins

FY 2005-2006

- Raisin Research on DOV Using the Within Row Alternate Bearing Method (WRAB DOV), by Bill Peacock
- Evaluation of Training Systems, Trellises, Row Direction, and Grape Cultivars for Dry-on-Vine (DOV) Raisin Production, by Matthew Fidelibus
- Evaluation of Canopy Separation and Defoliation Practices for Mechanized Raisin Harvest on Traditional Trellises, by Matthew Fidelibus and Stephan Vasquez
- Overhead Arbor Trellis Systems: Canopy Structure and Function in Relation to Irrigation Requirements, by Matthew Fidelibus and Stephan Vasquez
- Physiological Implications of Harvest Pruning Raisin Grapes, by Matthew Fidelibus and D. Smart
- Development of Improved Raisin Grapes for Mechanical Harvest including Types Resistant to Powdery Mildew, by David Ramming
- Development, Testing and Introduction of Grape Rootstocks with Broad and Durable Nematode Resistance, by Howard Ferris and M. Andrew Walker
- Breeding Rootstocks Resistant to Aggressive Root-Knot Nematodes, by Peter Cousins
- Sustainable Controls for Vine Mealybug: Mating Disruption, by Kent Daane

FUNDED CROP PRODUCTION RESEARCH

FY 2004-2005

- Development of Improved Raisin Grapes for Mechanical Harvest Including Types Resistant to Powdery Mildew, by David Ramming
- Breeding Rootstocks Resistant to Aggressive Root-Knot Nematodes, by Peter Cousins
- Development, Testing and Introduction of Grape Rootstocks with Broad and Durable Nematode Resistance, by Howard Ferris and M. Andrew Walker
- Developing Sustainable Control Options for the Vine Mealybug in California, by Kent Danne
- Investigation of the Grape Mealybug Complex and its Natural Enemies to Improve Biological Control, by Kent Daane and Mark Battany
- Use of Vine Mealybug Sex Pheromone for Monitoring and Mating Disruption, by Walt Bentley and Kent Daane
- Leafroll Disease Revisited, by D.A. Golino
- Develop and Implement Control Methods for Eutypa Dieback, by Doug Gubler
- Investigations Into Pathogenicity of *Phomopsis viticola* as a Cause of Cankers and Bud Death in Grapes, by George Leavitt
- Pheromones for Sampling Major Mealybug Pests in California Vineyards, by Jocelyn Millar
- Physiological Implications of Harvest Pruning Raisin Grapes, by Matthew Fidelibus
- Evaluation of Training Systems, Trellises, Row Direction, and Grape Cultivars in Dry-on-the-Vine (DOV) Raisin Production, by Matthew Fidelibus
- Evaluation of Canopy Separation and Defoliation Practices for Mechanized Raisin Harvest on traditional Trellises, by Matthew Fidelibus
- Evaluation of Nematode Resistant Rootstalks for Use with Early Ripening Raisin Varieties Grown for Dried-on-the-Vine Raisin Production, by Stephan Vasquez
- Raisin Research on DOV Using the Within Row Alternate Bearing Method (WRAB DOV), by Bill Peacock