APPENDIX D

SUMMARY OF OBSERVED MONTHLY EVAPORATION AND CALCULATED CROP EVAPOTRANSPIRATION RATES SOUTHERN SAN JOAQUIN VALLEY 1977 – 1991

TABLE D-1

SUMMARY OF OBSERVED MONTHLY
EVAPORATION RATES
SOUTHERN SAN JOAQUIN VALLEY[1,2]
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal	1.35	2.23	4.13	5.94	8.32	9.29	10.03	8.58	6.43	4.35	2.19	1.02	63.86
1977	0.81	2.62	4.05	7.66	6.96	9.06	8.58	7.59	5.90	4.01	1.80	1.77	60.81
1978	1.05	1.17	2.60	4.24	7.52	8.62	8.82	8.13	5.13	3.94	1.87	0.86	53.95
1979	1.48	1.97	3.59	5.96	8.82	8.64	8.66	8.18	6.15	4.28	2.19	1.78	61.70
1980	0.97	1.85	3.52	5.30	7.52	8.45	8.97	8.08	6.33	4.95	2.83	1.04	59.81
1981	1.92	2.14	3.34	5.71	8.46	11.00	10.46	9.23	8.22	4.73	2.52	1.25	68.98
1982	1.33	2.19	2.80	5.27	8.88	8.13	9.78	8.70	6.08	4.29	1.41	1.14	60.00
1983	1.16	2.01	3.18	5.52	8.54	10.10	9.79	8.51	6.79	4.48	2.06	1.15	63.29
1984	1.36	2.74	4.66	6.13	9.09	9.85	10.82	9.35	8.07	4.47	2.53	1.39	70.46
1985	0.96	2.62	4.09	6.72	8.68	9.83	10.15	9.13	6.55	4.96	2.08	0.77	66.54
1986	1.70	2.20	3.68	6.30	9.29	10.63	10.79	9.69	6.81	4.92	2.69	1.07	69.77
1987	1.48	2.37	4.41	7.34	9.14	10.26	9.72	9.70	7.23	4.92	1.96	1.91	70.44
1988	1.50	3.07	5.31	5.77	8.28	9.40	11.13	8.85	6.90	4.70	2.34	1.32	68.57
1989	1.35	2.49	4.24	6.87	8.30	9.53	9.93	9.01	6.21	4.82	2.43	1.24	66.42
1990	1.53	2.21	4.33	5.93	7.84	8.89	10.08	8.05	6.51	4.84	2.42	1.28	63.91
1991	1.42	2.47	3.76	5.90	8.19	9.26	9.99	8.36	7.18	4.69	2.36	1.45	65.03
Average	1.33	2.27	3.84	6.04	8.37	9.44	9.84	8.70	6.67	4.60	2.23	1.29	64.65
Std. Dev.	0.29	0.43	0.69	0.83	0.65	0.81	0.77	0.62	0.77	0.33	0.36	0.32	4.62
Std. Error	0.07	0.11	0.18	0.21	0.17	0.21	0.20	0.17	0.20	0.08	0.09	0.08	1.18

[1]Data from the Department of Water Resources' District Report "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1980, and annual appendices to that report.

[2]Evaporation from Class A pans located in irrigated pasture environments at: Wasco 8SW – January 1977 to December 1980; Bakersfield 10NW – January 1981 to April 1990; average of Bakersfield 12S and Lamont 2NW – May 1990 to December 1991.

TABLE D-2

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – ALFALFA REFERENCE CROP (ETP)
SOUTHERN SAN JOAQUIN VALLEY[1,2]
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal	1.25	2.06	3.79	5.46	7.66	8.54	9.23	7.89	5.92	4.02	2.01	0.95	58.78
1977	0.75	2.41	3.73	7.05	6.40	8.34	7.89	6.98	5.43	3.69	1.66	1.63	55.96
1978	0.97	1.08	2.39	3.90	6.92	7.93	8.11	7.48	4.72	3.62	1.72	0.79	49.63
1979	1.36	1.81	3.30	5.48	8.11	7.95	7.97	7.53	5.66	3.94	2.01	1.64	56.76
1980	0.89	1.70	3.24	4.88	6.92	7.77	8.25	7.43	5.82	4.55	2.60	0.96	55.01
1981	1.77	1.97	3.07	5.25	7.78	10.12	9.63	8.49	7.56	4.35	2.32	1.15	63.46
1982	1.24	2.01	2.57	4.86	8.17	7.47	8.99	8.02	5.57	3.94	1.30	1.04	55.18
1983	1.07	1.79	2.98	5.13	7.79	9.29	9.00	7.84	6.33	4.07	1.81	1.10	58.20
1984	1.24	2.53	4.31	5.61	8.35	8.69	9.97	8.60	7.21	4.12	2.33	1.27	64.23
1985	0.88	2.41	3.75	6.19	7.98	9.03	9.32	8.44	6.03	4.55	1.92	0.71	61.21
1986	1.51	2.04	3.38	5.80	8.53	9.66	9.93	8.91	6.26	4.52	2.48	0.98	64.00
1987	1.36	2.19	4.06	6.75	8.41	9.44	8.94	9.16	6.39	4.54	1.81	1.76	64.81
1988	1.37	2.81	4.89	5.31	7.62	8.64	10.23	8.14	6.35	4.32	2.16	1.20	63.04
1989	1.24	2.29	3.90	6.31	7.63	8.78	9.12	8.29	5.71	4.44	2.24	1.14	61.09
1990	1.40	2.01	3.98	5.45	7.21	8.18	9.29	7.42	5.99	4.45	2.22	0.95	58.55
1991	1.31	2.27	3.46	5.43	7.53	8.50	9.18	7.67	6.60	4.32	2.12	1.36	59.75
Average	1.22	2.09	3.53	5.56	7.69	8.65	9.05	8.03	6.11	4.23	2.05	1.18	59.39
Std. Dev.	0.26	0.40	0.64	0.76	0.59	0.73	0.71	0.60	0.68	0.30	0.33	0.30	4.19
Std. Error	0.07	0.10	0.16	0.19	0.15	0.19	0.18	0.15	0.17	0.08	0.08	0.08	1.07

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100-percent ground cover with no moisture stress (Jensen-Haise Alfalfa Reference Crop). Estimated as 0.92 x pan evaporation.

TABLE D-3

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – GRASS REFERENCE CROP (PET)
SOUTHERN SAN JOAQUIN VALLEY[1,2]
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal	0.96	1.69	3.16	4.62	6.48	7.25	7.81	6.70	4.99	3.31	1.61	0.75	49.33
1977	0.61	1.97	3.06	5.87	5.53	7.05	6.69	5.90	4.62	3.05	1.31	1.26	46.92
1978	0.75	0.94	1.96	3.30	5.82	6.60	6.46	5.83	3.84	2.86	1.37	0.64	40.37
1979	1.09	1.48	2.76	4.63	6.88	6.79	6.74	6.31	4.75	3.18	1.63	1.26	47.50
1980	0.70	1.41	2.70	4.14	5.86	6.59	7.00	6.30	4.89	3.73	2.07	0.74	46.13
1981	1.40	1.62	2.56	4.45	6.60	8.55	8.18	7.21	6.36	3.53	1.84	0.87	53.17
1982	0.96	1.65	2.14	4.11	6.91	6.34	7.63	6.80	4.68	3.23	1.01	0.79	46.25
1983	0.83	1.49	2.47	4.28	6.66	7.88	7.65	6.64	5.27	3.32	1.49	0.81	48.79
1984	0.98	2.06	3.58	4.75	7.10	7.38	8.44	7.29	6.03	3.35	1.82	0.97	53.75
1985	0.69	1.97	3.13	5.24	6.78	7.65	7.92	7.14	5.08	3.75	1.52	0.55	51.42
1986	1.19	1.66	2.81	4.91	7.26	8.19	8.43	7.56	5.27	3.73	1.97	0.75	53.73
1987	1.07	1.78	3.38	5.75	7.13	8.01	7.55	7.78	5.39	3.71	1.45	1.34	54.34
1988	1.09	2.31	4.09	4.48	6.46	7.32	8.69	6.90	5.35	3.57	1.72	0.94	52.92
1989	0.99	1.87	3.26	5.34	6.47	7.45	7.72	7.03	4.81	3.64	1.79	0.87	51.24
1990	1.10	1.66	3.35	4.61	6.11	6.94	7.88	6.28	5.04	3.66	1.75	0.91	49.29
1991	1.05	1.85	2.89	4.60	6.40	7.23	7.78	6.52	5.54	3.54	1.69	1.05	50.14
Average	0.96	1.71	2.94	4.70	6.53	7.33	7.65	6.77	5.13	3.46	1.63	0.92	49.73
Std. Dev.	0.18	0.31	0.54	0.64	0.50	0.62	0.65	0.56	0.58	0.27	0.27	0.22	3.70
Std. Error	0.05	0.08	0.14	0.16	0.13	0.16	0.17	0.14	0.15	0.07	0.07	0.06	0.95

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

[2]Potential ET of grass at 100-percent ground cover with no moisture stress (Penman Grass Reference Crop).

TABLE D-4

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – ALFALFA HAY
SOUTHERN SAN JOAQUIN VALLEY[1]
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal	1.03	1.70	3.13	4.51	6.32	7.06	7.62	6.51	4.90	3.31	1.67	0.79	48.55
1977	0.63	2.02	3.03	5.73	5.38	6.87	6.72	5.74	4.52	3.08	1.38	1.27	46.37
1978	0.76	0.94	1.94	3.19	5.71	6.55	6.88	6.08	3.80	2.98	1.45	0.65	40.93
1979	1.12	1.49	2.73	4.55	6.71	6.65	6.54	6.16	4.66	3.27	1.73	1.37	46.98
1980	0.74	1.42	2.64	4.06	5.61	6.43	6.55	6.06	4.82	3.84	2.14	0.78	45.09
1981	1.46	1.63	2.51	4.34	6.81	8.33	7.97	7.01	5.90	3.55	1.88	1.00	52.39
1982	1.01	1.66	2.09	3.97	6.73	6.18	7.43	6.69	4.51	3.27	1.10	0.84	45.48
1983	0.89	1.48	2.46	4.24	6.43	7.61	7.45	6.46	5.20	3.38	1.51	0.90	48.01
1984	1.04	2.09	3.55	4.62	6.92	7.18	8.25	7.02	5.95	3.42	1.86	1.07	52.97
1985	0.73	1.99	3.11	5.11	6.71	7.32	7.72	6.92	5.16	3.63	1.61	0.60	50.61
1986	1.25	1.65	2.78	4.79	7.02	7.99	8.24	7.40	5.18	3.73	2.04	0.82	52.89
1987	1.15	1.81	3.36	5.59	6.95	7.80	7.40	7.58	5.28	3.73	1.49	1.45	53.59
1988	1.13	2.33	4.03	4.39	6.29	7.13	8.46	6.72	5.25	3.58	1.77	1.01	52.09
1989	1.04	1.90	3.23	5.22	6.31	7.26	7.53	6.83	4.72	3.66	1.84	0.93	50.47
1990	1.17	1.67	3.30	4.50	5.96	6.76	7.67	6.12	4.95	3.67	1.85	0.98	48.60
1991	1.08	1.88	2.86	4.50	6.23	7.03	7.62	6.35	5.45	3.56	1.75	1.13	49.44
Average	1.01	1.73	2.91	4.59	6.38	7.14	7.50	6.61	5.02	3.49	1.69	0.99	49.06
Std. Dev.	0.22	0.32	0.53	0.63	0.50	0.58	0.59	0.51	0.53	0.24	0.26	0.24	3.49
Std. Error	0.06	0.08	0.14	0.16	0.13	0.15	0.15	0.13	0.14	0.06	0.07	0.06	0.89

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

TABLE D-5

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – COTTON
SOUTHERN SAN JOAQUIN VALLEY[1]
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal				0.32	1.74	5.60	9.73	8.43	4.75	1.02			31.59
1977				0.40	1.60	5.59	8.67	7.38	4.28	0.86			28.78
1978				0.13	1.27	4.46	8.53	8.01	3.87	1.15			27.42
1979				0.36	2.03	5.77	8.41	7.92	4.30	0.72			29.51
1980				0.40	1.81	4.81	8.40	7.87	4.78	1.34			29.41
1981				0.28	1.76	6.55	10.20	9.07	5.88	1.01			34.75
1982				0.25	1.81	4.88	9.40	8.75	4.69	1.50			31.28
1983				0.16	1.87	6.29	9.49	8.40	5.33	1.28			32.82
1984				0.84	3.34	7.32	10.67	8.30	4.03	0.20			34.70
1985				0.48	2.06	6.68	10.03	8.76	4.47	0.77			33.25
1986				0.51	2.33	7.32	10.73	9.38	4.57	0.71			35.55
1987				0.57	1.90	6.17	9.33	9.65	4.65	0.13			32.40
1988				0.49	1.61	5.75	10.70	8.67	4.95	0.46			32.63
1989				0.61	2.03	6.20	9.69	8.65	3.99	0.35			31.52
1990				0.54	1.85	5.73	9.91	7.67	4.06	0.41			30.17
1991				0.38	1.56	4.00	9.05	8.21	5.24	0.26			28.70
Average				0.43	1.92	5.83	9.55	8.45	4.61	0.74			31.53
Std. Dev.				0.18	0.45	0.94	0.80	0.61	0.55	0.43			2.40
Std. Error				0.05	0.12	0.24	0.21	0.16	0.14	0.11			0.62

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

TABLE D-6

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – CITRUS TREES
SOUTHERN SAN JOAQUIN VALLEY[1]
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal	0.81	1.30	2.33	3.32	4.61	4.88	5.23	4.46	3.34	2.42	1.24	0.60	34.54
1977	0.46	1.59	2.27	4.23	3.90	4.74	4.60	3.92	3.11	2.25	1.03	0.94	33.04
1978	0.58	0.71	1.44	2.35	4.18	4.49	4.71	4.18	2.58	2.22	1.04	0.47	28.95
1979	0.89	1.20	1.98	3.39	4.91	4.59	4.44	4.23	3.15	2.45	1.20	1.02	33.45
1980	0.56	1.08	1.95	3.00	4.13	4.39	4.48	4.13	3.33	2.84	1.54	0.56	31.99
1981	1.16	1.25	1.88	3.21	4.94	5.73	5.48	4.82	4.07	2.64	1.44	0.73	37.35
1982	0.82	1.26	1.54	2.91	4.94	4.26	5.10	4.60	3.08	2.38	0.80	0.64	32.33
1983	0.68	1.12	1.83	3.12	4.70	5.27	5.08	4.43	3.57	2.48	1.15	0.65	34.08
1984	0.82	1.58	2.62	3.42	5.03	4.92	5.62	4.81	4.11	2.51	1.40	0.78	37.62
1985	0.58	1.52	2.32	3.75	4.85	5.06	5.27	4.73	3.57	2.69	1.18	0.38	35.90
1986	0.98	1.26	2.07	3.53	5.10	5.47	5.64	5.07	3.58	2.76	1.51	0.61	37.58
1987	0.91	1.40	2.50	4.10	5.08	5.37	5.07	5.18	3.63	2.75	1.10	1.07	38.16
1988	0.91	1.79	2.99	3.22	4.59	4.91	5.79	4.60	3.61	2.62	1.31	0.75	37.09
1989	0.81	1.48	2.39	3.84	4.59	5.00	5.14	4.68	3.27	2.70	1.35	0.69	35.94
1990	0.92	1.28	2.45	3.33	4.35	4.64	5.24	4.19	3.42	2.71	1.35	0.71	34.59
1991	0.85	1.44	2.11	3.31	4.51	4.83	5.20	4.33	3.78	2.62	1.28	0.86	35.12
Average	0.80	1.33	2.16	3.38	4.65	4.91	5.12	4.53	3.46	2.57	1.25	0.72	34.88
Std. Dev.	0.18	0.25	0.40	0.46	0.36	0.40	0.40	0.35	0.38	0.18	0.19	0.18	2.52
Std. Error	0.05	0.06	0.10	0.12	0.09	0.10	0.10	0.09	0.10	0.05	0.05	0.05	0.65

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

TABLE D-7

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – DECIDUOUS ORCHARD
(CLEAN CULTIVATED)
SOUTHERN SAN JOAQUIN VALLEY[1]
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal			1.68	3.25	5.38	6.62	7.52	6.42	4.60	2.65	0.92		39.04
1977			1.60	4.15	4.62	6.40	6.60	5.65	4.21	2.43	0.70		36.36
1978			1.10	2.32	4.80	6.20	6.74	6.21	3.51	2.31	0.68		33.87
1979			1.19	3.28	5.83	6.28	6.40	6.10	4.30	2.62	0.77		36.77
1980		0.04	1.60	3.02	4.94	6.10	6.49	5.96	4.44	2.97	0.82		36.38
1981			1.36	3.12	5.73	7.79	7.86	6.93	5.59	2.84	0.84		42.06
1982			1.11	2.91	5.73	5.78	7.34	6.63	4.26	2.61	0.55		36.92
1983			1.33	3.06	5.51	7.15	7.38	6.36	4.86	2.63	0.74		39.02
1984			2.08	3.42	5.95	6.80	8.14	6.94	5.54	2.65	0.93		42.45
1985			1.49	3.63	5.58	6.83	7.59	6.85	4.87	3.02	0.97		40.83
1986		0.04	1.72	3.57	6.12	7.59	8.14	7.31	4.77	2.87	0.88		43.01
1987			2.05	4.15	6.02	7.44	7.30	7.48	5.37	3.02	0.59		43.42
1988			2.27	3.15	5.38	6.71	8.35	6.64	4.89	2.83	0.99		41.21
1989			1.76	3.79	5.42	6.85	7.44	6.75	4.41	2.85	0.86		40.13
1990			1.60	3.17	4.93	6.22	7.56	6.04	4.72	3.03	0.98		38.25
1991			1.73	3.32	5.39	6.66	7.49	6.25	5.00	2.78	0.69		39.31
Average		0.01	1.60	3.34	5.46	6.72	7.39	6.54	4.72	2.76	0.80		39.33
Std. Dev.		0.01	0.34	0.46	0.45	0.56	0.59	0.50	0.53	0.21	0.23		2.80
Std. Error		0.00	0.09	0.12	0.12	0.14	0.15	0.13	0.14	0.05	0.06		0.72

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

TABLE D-8

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – DECIDUOUS ORCHARD
SOUTHERN SAN JOAQUIN VALLEY[1]
(With Crop Cover)
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal	0.97	1.68	3.32	5.05	7.64	8.72	9.47	7.97	5.71	3.57	1.65	0.73	56.48
1977	0.61	1.98	3.19	6.55	6.52	8.50	8.32	7.00	5.24	3.28	1.38	1.15	53.72
1978	0.70	0.93	2.07	3.67	6.87	8.11	8.54	7.50	4.38	3.19	1.41	0.59	47.96
1979	1.07	1.49	2.79	5.26	8.20	8.23	8.03	7.55	5.37	3.56	1.65	1.25	54.45
1980	0.67	1.42	2.83	4.69	6.92	7.94	8.16	7.33	5.57	4.10	2.08	0.71	52.42
1981	1.40	1.62	2.71	5.02	8.26	10.31	9.89	8.46	6.78	3.77	1.87	0.88	60.97
1982	0.96	1.64	2.21	4.52	8.13	7.64	9.24	8.19	5.28	3.53	1.09	0.77	53.20
1983	0.86	1.47	2.63	4.83	7.78	9.40	9.26	7.90	6.06	3.60	1.47	0.83	56.09
1984	0.98	2.06	3.77	5.32	8.38	8.88	10.28	8.54	6.90	3.64	1.83	0.99	61.57
1985	0.68	1.98	3.33	5.89	8.10	9.08	9.58	8.41	5.89	3.90	1.58	0.50	58.92
1986	1.18	1.64	2.99	5.55	8.56	9.86	10.25	9.01	5.98	3.98	2.00	0.75	61.75
1987	1.08	1.79	3.51	6.34	8.37	9.64	9.17	9.28	6.16	4.05	1.47	1.35	62.21
1988	1.09	2.29	4.28	5.00	7.62	8.83	10.51	8.21	6.10	3.84	1.76	0.94	60.47
1989	0.98	1.87	3.41	5.97	7.64	8.97	9.35	8.36	5.48	3.92	1.81	0.87	58.63
1990	1.10	1.66	3.53	5.18	7.21	8.36	9.53	7.46	5.73	3.94	1.81	0.73	56.24
1991	1.05	1.85	3.06	5.18	7.56	8.71	9.42	7.72	6.28	3.79	1.69	1.05	57.36
Average	0.96	1.71	3.09	5.26	7.74	8.83	9.30	8.06	5.81	3.74	1.66	0.89	57.06
Std. Dev.	0.21	0.31	0.56	0.71	0.61	0.72	0.74	0.62	0.61	0.26	0.25	0.23	4.01
Std. Error	0.05	0.08	0.14	0.18	0.16	0.18	0.19	0.16	0.16	0.07	0.06	0.06	1.03

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

TABLE D-9

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – GRAIN SORGHUM
SOUTHERN SAN JOAQUIN VALLEY[1]
1977 – 1985
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal						0.45	2.73	7.55	5.29	1.68			17.70
1977						0.84	3.00	7.87	5.95	2.08			19.74
1978							1.33	5.50	4.38	2.52	0.09		13.82
1979					1.12	3.17	7.57	6.65	3.53				22.04
1980					1.02	3.43	7.73	6.50	3.41				22.09
1981						0.78	4.29	8.30	6.14	1.14			20.65
1982							1.33	5.77	5.31	2.55			14.96
1983						0.24	1.84	6.83	5.97	2.27			17.15
1984						0.07	1.61	6.73	6.90	2.50			17.81
1985						0.36	2.24	7.90	5.76	2.34			18.60
Average					0.24	0.99	3.44	6.89	5.26	1.71	0.01		18.54
Std. Dev.					0.45	1.27	2.42	0.91	1.15	1.00	0.03		2.75
Std. Error					0.15	0.42	0.81	0.03	0.38	0.33	0.01		0.92

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

TABLE D-10

SUMMARY OF OBSERVED MONTHLY
EVAPOTRANSPIRATION RATES – DRY BEANS
SOUTHERN SAN JOAQUIN VALLEY
1986 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal					1.50	7.71	8.63	2.57					20.41
1986					1.63	8.73	9.42	3.10					22.88
1987					2.54	8.74	8.12	1.84					21.24
1988					1.26	7.94	9.40	2.87					21.47
1989					1.30	7.76	8.60	3.03					20.69
1990					1.09	7.25	8.77	2.70					19.81
1991					1.28	7.55	8.67	2.79					20.29
Average					1.52	8.00	8.83	2.72					21.06
Std. Dev.					0.48	0.56	0.46	0.42					0.98
Std. Error					0.20	0.23	0.19	0.17					0.40

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

TABLE D-11

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – SMALL GRAINS
SOUTHERN SAN JOAQUIN VALLEY[1]
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal	0.60	1.75	3.95	5.59	5.48	0.37						0.14	17.88
1977	No Data For This Year												
1978	0.30	0.98	2.47	3.93	4.79	0.10						0.13	12.70
1979	0.68	1.60	3.31	5.63	5.44	0.00						0.29	16.79
1980	0.46	1.55	3.36	4.98	4.07	0.00						0.20	14.71
1981	0.98	1.81	3.22	5.27	4.85	0.00						0.25	16.33
1982	0.58	1.69	2.64	4.87	5.85	0.30						0.10	16.18
1983	0.38	1.20	2.90	5.40	5.36	0.20						0.23	15.54
1984	0.71	2.21	4.49	5.66	5.61	0.00						0.22	18.91
1985	0.41	1.99	3.92	6.37	6.24	0.63						0.09	19.78
1986	0.70	1.64	3.50	5.96	6.05	0.00						0.18	17.94
1987	0.65	1.82	4.19	6.93	6.38	0.63						0.24	20.78
1988	0.56	2.20	4.99	5.52	3.67	0.00						0.17	17.18
1989	0.55	1.72	3.99	6.54	5.97	0.18						0.18	19.12
1990	0.58	1.60	4.12	5.65	5.87	0.00						0.13	18.00
1991	0.50	1.65	3.46	5.67	6.51	1.97						0.25	19.89
Average	0.57	1.69	3.61	5.60	5.48	0.29						0.19	17.43
Std. Dev.	0.16	0.32	0.69	0.72	0.82	0.51						0.06	2.15
Std. Error	0.04	0.09	0.18	0.19	0.22	0.14						0.02	0.57

Note: Totals are for crop growing season, which begins in December and ends (usually) by June.

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.

TABLE D-12

SUMMARY OF CALCULATED MONTHLY
EVAPOTRANSPIRATION RATES – VINEYARD
SOUTHERN SAN JOAQUIN VALLEY[1]
1977 – 1991
(inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal				0.35	2.47	5.02	6.49	5.66	3.99	1.73	0.40		26.11
1977			0.00	0.44	2.32	4.92	5.71	4.96	3.64	1.55	0.32		23.86
1978			0.00	0.68	3.39	5.26	6.00	5.29	3.01	1.44	0.31		25.38
1979			0.00	0.40	2.91	4.86	5.51	5.36	3.74	1.60	0.35		24.73
1980			0.18	1.25	3.93	5.40	5.70	5.04	2.67	1.05	0.13		25.35
1981			0.17	1.51	4.70	7.05	6.93	5.77	3.30	0.89	0.00		30.32
1982			0.00	0.79	3.92	4.93	6.45	5.80	3.15	1.04	0.05		26.13
1983			0.08	1.07	4.28	6.34	6.49	5.50	3.32	1.00	0.04		28.12
1984			0.15	1.44	4.61	6.01	7.15	6.01	3.40	0.96	0.20		29.93
1985			0.05	1.16	4.13	6.00	6.72	5.96	3.30	1.22	0.14		28.68
1986			0.41	2.59	5.47	6.91	7.15	5.46	2.09	0.99	0.31		31.38
1987			0.12	1.36	4.39	6.42	6.40	6.48	3.26	1.19	0.25		29.87
1988			0.14	1.15	4.17	5.94	7.34	5.71	3.18	1.06	0.35		29.04
1989			0.13	1.46	4.21	6.05	6.55	5.94	3.54	1.46	0.28		29.62
1990			0.15	1.38	3.92	5.63	6.65	5.16	2.87	1.06	0.31		27.13
1991			0.00	0.71	3.09	4.86	6.43	5.50	4.13	1.40	0.24		26.36
Average			0.11	1.16	3.96	5.77	6.48	5.60	3.24	1.19	0.22		27.73
Std. Dev.			0.11	0.52	0.76	0.70	0.54	0.40	0.46	0.23	0.11		2.25
Std. Error			0.03	0.13	0.19	0.18	0.14	0.10	0.12	0.06	0.03		0.58

[1]Data from the Department of Water Resources' District Report, "Crop Water Use – A Guide for Scheduling Irrigations in the Southern San Joaquin Valley," September 1970, and annual appendices to that report.